MEMORIAL HOSPITAL NUMBER

DELAWARE STATE MEDICAL JOURNAL

Official Organ of the Medical Society of Delaware

INCORPORATED 1789

VOLUME 27
NUMBER 10

OCTOBER, 1955

Per Year, $4.00
Per Copy, $ .50

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Entered as second-class matter June 28, 1929, at the Post Office at Wilmington, Delaware, under the Act of March 3, 1879. Editorial Office, 822 North American Building, Wilmington 7, Delaware. Business Office, Farnhurst, Delaware. Issued monthly.


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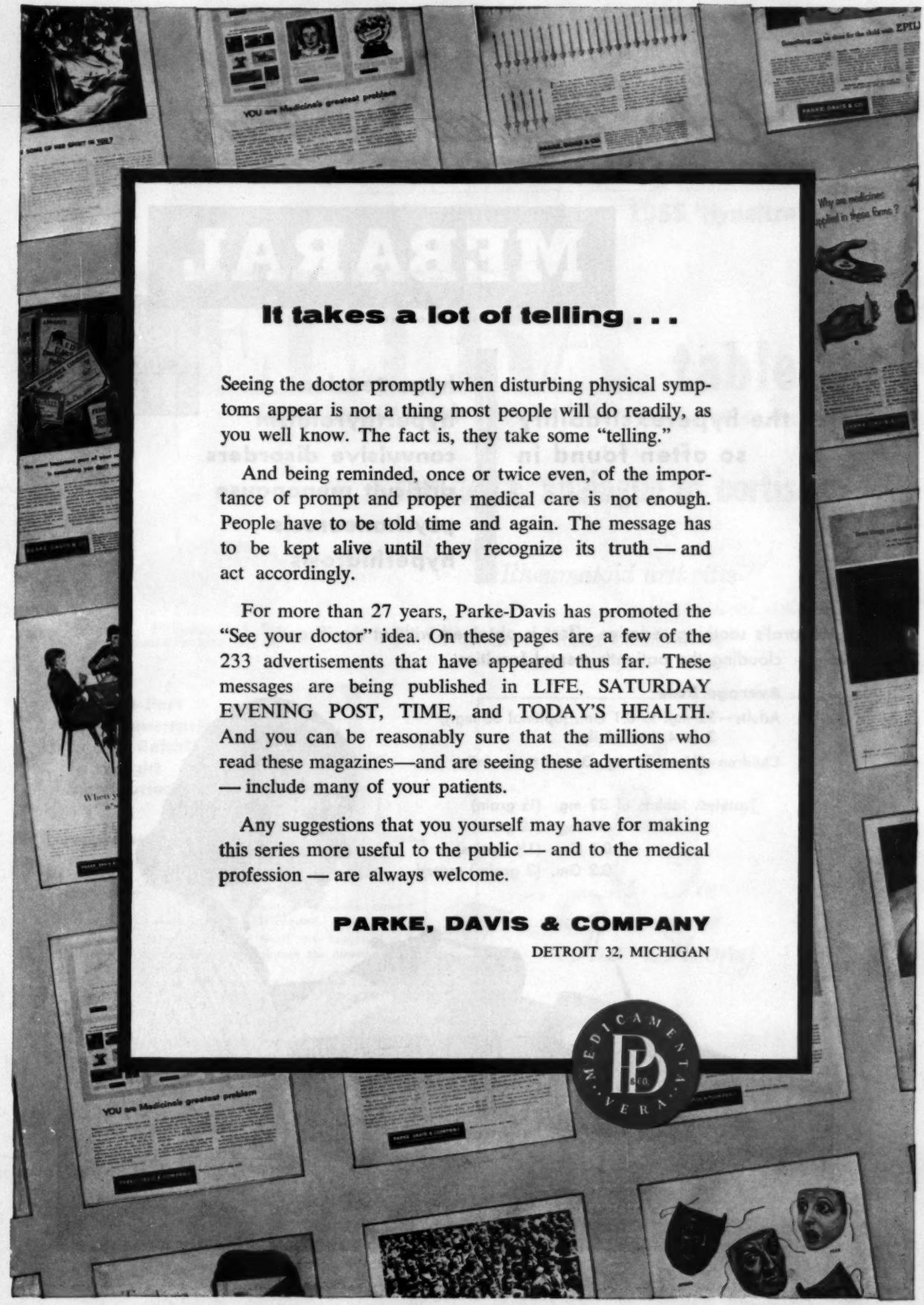

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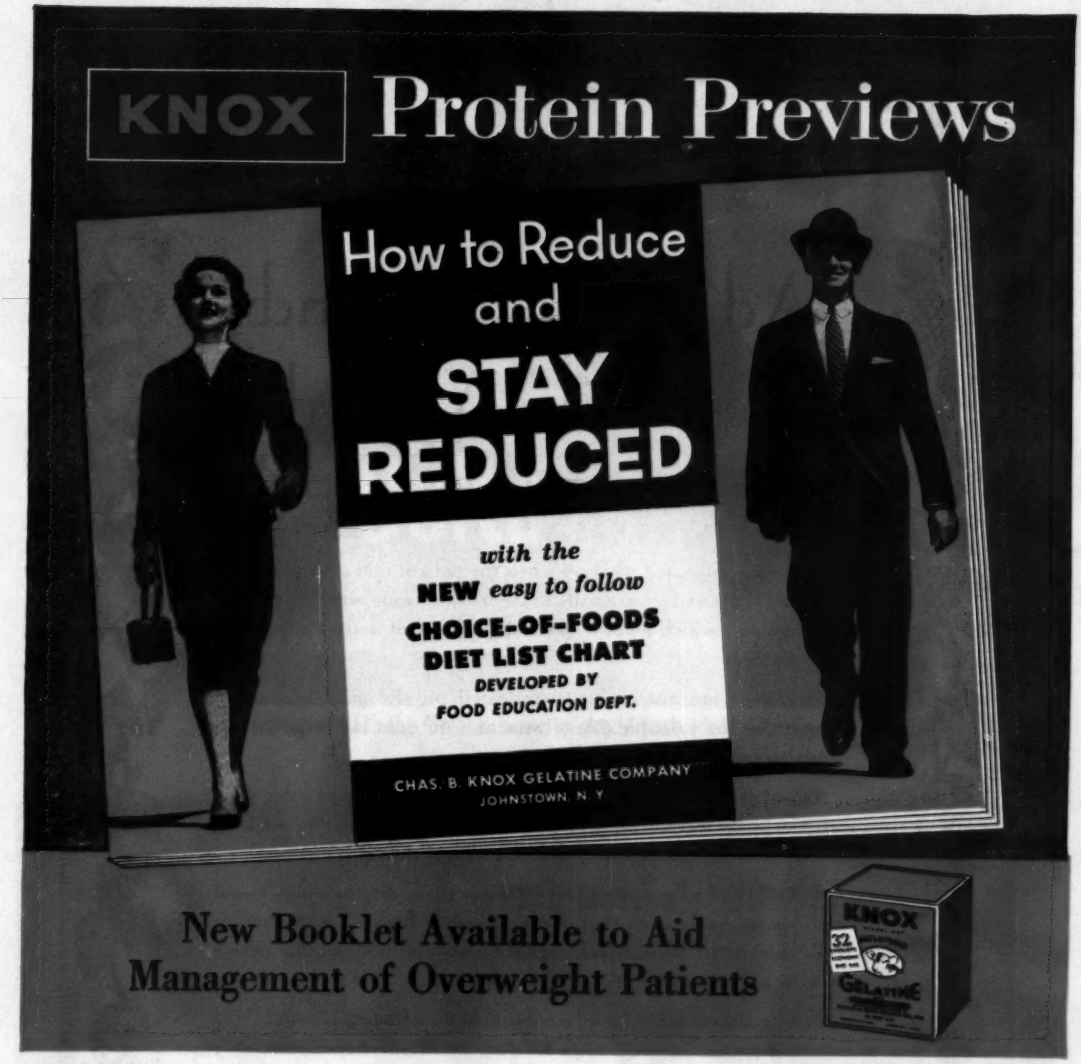

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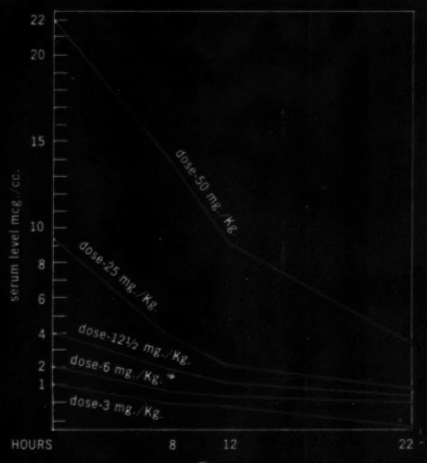

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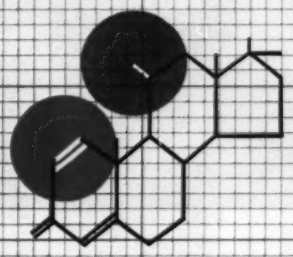

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Issued Monthly Under the Supervision of the Publication Committee
Owned and Published by the Medical Society of Delaware

VOLUME 27
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THE MEDICAL SOCIETY OF DELAWARE*

LEWIS B. FLINN, M.D.,
Wilmington, Del.

Last January 1st, when I succeeded to the Presidency of this Society, I asked myself several questions: For what purpose was the Medical Society of Delaware founded? How nearly has that purpose been achieved? Is that purpose still worth our striving for; and, if so, what can and should we do about it? Perhaps many of you may not have confronted yourselves with these questions. Certainly upon their answer depends the future of the State Society.

The first question is the easiest and has been well documented.[1,2,3,4] The story of our early history is truly inspiring. You will recall that a few physicians organized the Delaware State Medical Society in 1776. In 1789 it was incorporated under the title of The President and Fellows of the Medical Society of Delaware, the second oldest state medical society to become incorporated. From the petition "To the Honorable the General Assembly of the Delaware State" I quote three paragraphs:

"That at this period of improvement & civilization when our country is so commendably employed in cultivating the arts of peace, & securing prosperity at home, & respectability abroad; nothing conductive to those important purposes can be deemed unworthy the attention of a liberal & enlightened Legislature.

"From the rising opulence & populousness of the State, & from the general insalubrity of our country, the number of Physicians must probably always be large. It becomes therefore an object of importance to the State, that Medicine should be cultivated with ardour & diligence.

"The communication of useful observations and enquiries, and combining the medical wisdom & ability of the State into a society, will be most probable means of attaining this end. And nothing, we conceive, will facilitate the undertaking more than a Legislative Act of Incorporation."

From the Act of Incorporation itself, I quote as follows:

"WHEREAS, The practice of medicine is of acknowledged and extensive benefit to society, and therefore ought to be promoted and encouraged, and

"WHEREAS, It is of great consequence that the same should be conducted on some permanent establishment of regularity and permanent utility; for the purposes whereof — etc."

The first president was James Tilton, M.D., who served in that office from 1789 to 1822. Dr. Tilton was a most prominent and distinguished gentleman whose biography makes delightful reading but which can not be detailed here.

In 1819 "An Act to Regulate the Practice of Medicine and Surgery in This State" was passed. Since that time it has been revised in one way or another ten times. The most recent revision occurred during the present session of the General Assembly.

Through all the early period regular scientific meetings were held and many interesting and important papers were presented. Dr. Edward Miller wrote authoritatively on Yellow Fever in 1790; Dr. Allen McLane in 1823 wrote "An Eulogium to the Memory of James Tilton, M.D." In 1832 an epidemic of Asiatic cholera swept through Delaware.

The American Medical Association was organized in Philadelphia in 1847. This is a federacy of constituent state and territorial medical associations. Each state medical society retains autonomy. The A.M.A. can recommend to the State Society but has very little disciplinary action.

* Presidential Address, delivered before the Medical Society of Delaware, Wilmington, October 17, 1955.

The State Society, however, does have disciplinary action over each county society which exists only by charter from the State Society. At the first annual meeting of the American Medical Association held in the city of Baltimore in May, 1848, the Medical Society of Delaware was represented by Drs. Isaac N. Jump, John D. Perkins, and Henry F. Askew.

Dr. Jump — President, 1857-58 — graduated from the University of Pennsylvania in 1836, practiced in Dover and was very active in civil affairs. Dr. Askew — President, 1851-55 and 1875-76 — graduated from the University of Pennsylvania in 1826, practiced in Wilmington and was a founder of the Historical Society of Delaware, was Vice-president of the American Medical Association in 1859 and President in 1867; the only Delaware physician to achieve this honor.

Also attending the 1848 meeting of the American Medical Association in Baltimore was Dr. Lewis P. Bush — President, 1860-61 — who represented the Medical Association of Wilmington and was one of the original incorporators of the Delaware Hospital in 1889. Dr. James Couper was also at the Baltimore meeting as a permanent member of the American Medical Association, one of the original group who met the year before in Philadelphia. Dr. Couper was president of our Society for nine intermittent years, first in 1835. He practiced in New Castle. He was a Vice-president of the A.M.A. in 1863.

Journalism has been prominent in the history of our Society. Various publications occurred beginning in 1798. The Delaware State Medical Journal was organized in 1909. Dr. Harold Springer was editor for two years, followed by Dr. Albert Robin who served in that capacity until 1916 when the present editor, Dr. W. Edwin Bird, took office. We all owe Dr. Bird many thanks and a great debt of gratitude for forty years of continuous service. He has in no small measure been responsible for much that the state organization has accomplished.

Our Society, therefore, began its career with dignity and set for itself the goal of so regulating and conducting itself that the health and welfare of all the citizenry might best be nurtured. Even in the early days great attention was given to public health. Delaware physicians played a prominent part in the early days of the American Medical Association. What has happened in the last fifty years? The reorganization of medical schools in 1910 largely through the influence of Abraham Flexner, two world wars, rapid advances in biochemistry, bacteriology, virology, and atomic physics have all helped to produce startling changes in medicine and therefore in the responsibilities of this Society. Sixty-six per cent of the 300 members of New Castle County are listed now as specialists. Of the 26 members in Kent County and 55 members in Sussex Sounty about 30 per cent are listed as specialists. With the ever-increasing demands of modern medicine are we, as a society, assuming the responsibility and leadership in keeping with the traditions of the past? Is it worthwhile for the State Society to strive to do better? Is there a need for an active wide-awake forward-looking State Society when we have so many scientific organizations, so many specialty organizations, hospital meetings, departmental conferences, medical journals, and public health bulletins? My answer is unequivocally yes! We need to come to life! We need to assume responsibilities to which we have merely been giving lip service. We need to protect our heritage and meet the future with confidence.

How should this be done? I do not have the entire answer. I do have some suggestions for us all to consider. As far as scientific medical presentations are concerned, it would seem that the role of the State Society is to stimulate such presentations and encourage publications in the State and other journals rather than conduct extensive medical programs of its own. In the forseeable future a scientific program at the annual session should suffice. This program, however, should be attractive, informative, and interesting. Authoritative summaries of advances in various fields should be presented for the benefit of the entire membership, reserving detailed

papers in special fields for consideration by the various special groups in their regular meetings and conferences throughout the year. At the same time individuals in the Society who may have developed investigations of interest should be encouraged to present exhibits or papers at the annual session.

I wish to emphasize three major areas which demand urgent attention: postgraduate education, public relations, and extension of medical care. The State Society must take the initiative but ultimately must work through each county society. (Chart I) In the field of post graduate

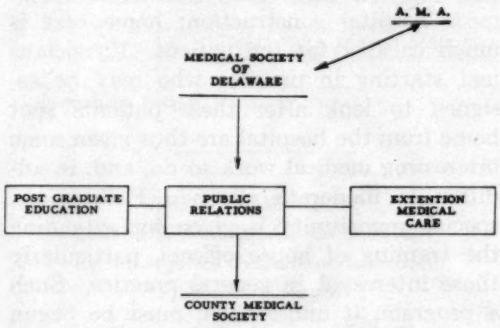

CHART I

education (Chart II) the Delaware Academy of Medicine and the University of Delaware should be of great assistance. Both have expressed their desire and willingness

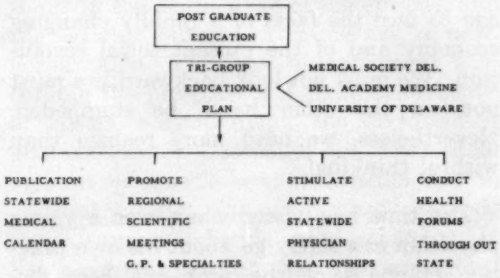

CHART II

to work with us. A committee representing the three organizations was activated some six months ago. In order to encourage attendance at existing medical meetings and hospital conferences throughout the state, a medical calendar of events is to be published monthly in the State Journal and also mailed directly to every physician. Efforts must be made to promote regional scientific meetings of the many specialty groups; such as the American College of Physicians, American College of Surgeons, American Academy of General Practice, American Heart Association, American Diabetes Association, American Cancer Society, Anti-Tuberculosis Association, etc. It is most important to stimulate physicians to attend conferences, rounds, and meetings already scheduled in parts of the state remote from their usual sphere of activity. The doctors in New Castle must be more conversant with physicians and their problems in Sussex, and vice versa. It is not to be inferred that physicians in any one area are superior to or are better informed than in another area. Each can learn from the other. The result will be better medicine practiced, better service given, a stronger society with a unified plan for medical progress. The desirability of holding in other parts of the state health forums such as have been so successfully held in Wilmington should be given prompt attention.

In the field of public relations (Chart III) we really need to take a new look! It

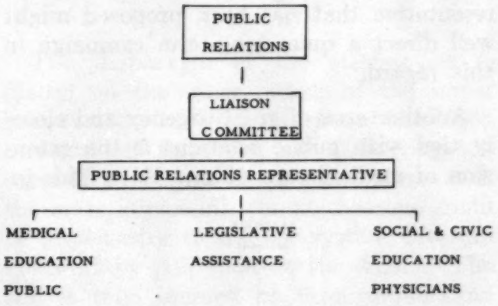

CHART III

has been suggested that there be created a position of full time executive secretary; probably a lay person, who will work through a liaison committee with the State and County Medical Societies. Our recent experiences in Dover during the last meeting of the legislature have highlighted the need for legislative assistance. Unfortunately, it has become all too clear that many of the legislators and a not inconsiderable number of other people do not hold physicians in very high esteem. It must be recognized that some of this ill

feeling is due to misconduct on the part of a few doctors. It is also evident that many other physicians do not give their patients and the public generally as much consideration as is properly due them. There is another sizable group whose chief sin is complacency. Our public relations activities must therefore include gradual education of physicians in regard to social trends and civic responsibilities. We are all citizens as well as physicians! Can the Women's Auxiliary be of real assistance here?

The ignorance of the public about what physicians really do, about how many hours they work, often without remuneration, and about their true concern for the patient's welfare is a most important factor in the present general misunderstanding. This self-sacrificing interest is so much a part of the true physician's make-up, of his whole being, that he is very naturally reluctant to call attention to it. One does not like to advertize such characteristics. Nevertheless, if this side of the doctor's life and practice can be unostentatiously but convincingly presented to his fellow citizen, it will go a long way toward improving public relations. The new lay representative that has been proposed might well direct a quiet long-term campaign in this regard.

Another area of great urgency and closely tied with public relations is the extension of medical care (Chart IV). This in-

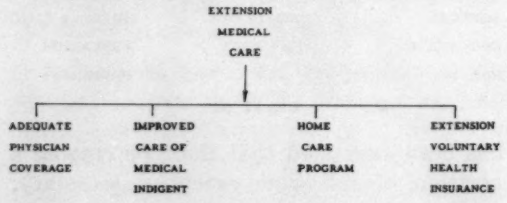

CHART IV

cludes adequate physician coverage. There are areas within the city of Wilmington and in certain rural areas where such coverage is inadequate at the present time. In thirty-seven states there are physician placement agencies. In a state the size of Delaware, can not this situation be handled by each county society? What sort of stimulation is needed to spur the county societies to action? In regard to improved and more equitable care of the medically indigent, should we not take the initiative? It has been suggested that at the next annual assembly we have ready a plan very similar to those of Pennsylvania and Maryland, or possibly Tennessee.

A home care program has great promise. Several committees of the State Society, several hospitals, and several social agencies are, at present, exploring the practicality of such a plan. It has been successful in certain hospitals in New York and Pittsburgh. The hospital stay of many patients can be shortened thus releasing more beds and perhaps preventing the necessity of more hospital construction; home care is much cheaper for the patient. Physicians just starting in practice who may be assigned to look after these patients sent home from the hospital are thus given some interesting medical work to do, and, in addition, a moderate stipend. Futhermore, special opportunity is given for extending the training of house officers, particularly those interested in general practice. Such a program, if undertaken, must be begun carefully, in pilot form, and have to do only with, at least for some time, the medically indigent.

Attention also must be given to extension of voluntary health insurance. Here again we must take the initiative and have courage to face the facts of a rapidly changing economy and of the present social revolution. We must not look backward; we must not, on the other hand, be stampeded. Nevertheless, we need more realism than wishful thinking!

The time has passed when even a young physician can safely go about his own practice oblivious of the problems here discussed. These problems may not be as interesting as a clinical pathological conference; but, if not given serious thought and properly solved, the freedom and individuality of the practicing physician may well disappear. The State Society is the only practical means of co-ordinating policy for Delaware physicians. Should it fail, it will become a useless, decadent organization

with a brilliant past and no future. Should such a failure occur, chaos must certainly follow; we would have lost our heritage and would have no guide for the future. My plea is for us all to work diligently and continuously toward the goal originally set by the founders 166 years ago. If we do this with humility and faith, we can look forward with confidence, not only to a strong state medical Society but to improved medical service, increased medical knowledge, and greater dignity and happiness in the practice of medicine.

503 Delaware Avenue.

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THE TREATMENT OF CEREBRAL VASCULAR OCCLUSION

By Emergency Histamine Injection

Preliminary Report

WILLIAM T. HALL, M.D.,*
Wilmington, Del.

The treatment of cerebral vascular occlusion beyond supportive measures and rehabilitation remains controversial. The difficulty in obtaining a large series of patients in the acute stage of the episode, and the variable subsequent course are, in part, accountable. The lack of agreement concerning the presence of a significant degree of spasm accompanying the occlusion is another factor. Because of the small amount of muscle seen microscopically in cerebral arteries, it is felt that a strong spasm causing ischemia could not exist[1]. It has been pointed out that anoxemia itself is a strong vasodilator and, therefore, the vascular channels about the occlusion should be fully dilated beyond what any drug could do. On the other hand, Penfield[2] noted intense constriction of the arteries of the exposed cortex following an epileptic attack induced by electrical stimulation. Neurosurgeons injecting cerebral arteries for cerebral angiograms have noted spasm in the vessels and histamine injected during craniotomy, has produced visable cerebral vasodilation.

Stellate ganglion blocks, continuous daily intravenous drips of histamine[3] and inhalation of 2½ to 5% CO_2 with oxygen[4] are some of our present methods of active treatment. They are all attempts to increase blood flow to the ischemic area by cerebrovascular dilation. They require hospitalization and the attendant delay. Since nerve tissue is most susceptable to anoxia, it is desirable that, if vasodilation is effective, it be accomplished as soon as possible.

An effective oral or rectal drug to be administered by the patient or the family would be best. An injectable in the hands of the family physician would be next. Histamine causes a greater increase in blood flow to the central nervous system than any other drug known[5].

After reviewing the literature, I have injected seven patients intravenously with 1cc or less. These cases are reported here in the hope of stimulating others to investigate the promising possibilities of this drug.

METHOD

The diaphragm of the stethoscope is placed on the inner aspect of the upper arm over the brachial artery and the blood pressure cuff tightened over it, leaving one hand free. (Since the systolic pressure is the more important, the stethoscope could be dispensed with and the systolic pressure obtained by palpation at the wrist). The cuff is then inflated as a tourniquet and with a syringe containing 1 mg. of histamine diphosphate in 1cc, an arm vein is entered. The patient is warned that a throbbing headache will soon develop but he is reassured that it will not last long. 0.1 to 0.3 cc is injected and the blood pressure checked at 20 to 30 second intervals. After each blood pressure check, it is well to empty the needle of blood to prevent clotting. A flush develops over the head and neck and is followed by the headache. If there is too rapid fall in blood pressure, nausea, vomiting, sweating, and a shock picture develops. This indicates too much was injected initially. It is well to termi-

* Assistant in Medicine, Memorial Hospital.

nate the injection and elevate the foot of the bed. If the blood pressure does not fall below 80 mg. of mercury systolic, subsequent injections are made at three minute intervals until the full cc has been absorbed.

CASE 1

A 68 year old, obese, right-handed, executive, rather suddenly developed thickness of speech and right facial weakness while sitting and drinking with friends. He was carried to his room because of weakness of the right leg. One friend who had been with him most of the morning stated that he had consumed only two highballs and that that was a moderate amount for the patient.

No past medical history could be obtained from the patient or his friend. Examination of the patient about twenty minutes following this attack revealed a large man of ruddy complexion with slight right facial weakness lying in bed, moving restlessly his left arm and leg. He answered questions with a thick speech that was coherent slightly more often than not. Although fairly well oriented as to time and place, he refused to accept the possibility that he had had a stroke, and rejected any suggestion of hospitalization. Breathing was stertorous, and between questions and commands he would lapse into a semicomatose state. The tongue protruded slightly to the right. There was slight flattening of the right face, and weakness was apparent on speaking. Weakness of the right arm and leg was apparent, but was neither flaccid nor spastic. Blood pressure 110/70, pulse 108.

He was given 0.27 mg. of histamine diphosphate intravenously within one-half hour of onset of symptoms. His ruddy complexion deepened slightly. His sensorium and speech cleared dramatically within minutes of the injection. He joked with his friend and the examiner, and agreed readily to go to the hospital. On examination at the hospital, about one hour later, he was found to be normal in all respects. He was kept over night for observation and discharged the following day without further residual.

CASE 2

An 81 year old right-handed veteran of the Spanish-American War began vomiting on January 7, 1953 and shortly thereafter developed bilateral chest pain extending into the axilla and helped somewhat by nitroglycerine. He spent a fairly restful night but vomited twice. At 9 A.M. the next morning he was conversing with his wife from the bathroom when he suddenly stopped talking. She hurried in and found him on the floor apparently paralyzed on the right side and speechless. In this condition he was admitted to the cardiology ward one and one-half hours later.

He had been taking nitroglycerine for post-exertional chest pain for many years with satisfactory relief. In 1950 he had been hospitalized two months for nausea, vomiting, and melena, with the diagnosis of peptic ulcer. Otherwise, he had been in good health during the ten years he lived with his present wife.

Examination disclosed a senile, fairly well-nourished, white male thrashing about in bed, making no sound, and picking at the covers. Temperature was 97.4°F, pulse 92, respirations 24, and blood pressure 98/74. His face was expressionless with apparently decreased tone on the right and drooping of the right corner of the mouth. The tongue protruded in the midline. The eyes showed no constant deviation, but would not follow objects or focus on the examiner. The pupils were small and equal, and there was bilateral arcus senilus.

There was weakness of the right arm and leg with some spasticity, patellar clonus, questionable ankle clonus, a Babinski sign on the right, and questionable Babinski on the left.

He was given lmg. (1 cc) of histamine diphosphate intravenously at approximately 11:00 A.M. His face flushed and he grimaced as if in pain. These reactions passed rapidly, and no immediate improvement was noted. About 15 minutes later he was seen sitting propped up in bed apparently reading the paper his wife was

holding for him. On examination, there was still a right-sided paralysis, but his eyes fixed readily on the people in his vicinity, and although still aphasic he appeared cognizant of what was going on.

He was given a second intravenous injection of 1 mg. (1cc) of histamine diphosphate with the usual flush and grimace. No immediate improvement was noted. It was evident that he could not swallow and a nasogastric tube was passed. It was necessary to restrain his left arm to prevent the patient from removing the tube.

He was placed on nicotinic acid, 100 mg. TID. The following day it was noted that he could move his right arm and leg and that he was able to swallow without difficulty. During the following three days there was complete resolution of the hemiplegia, and the patient was, in all repsects, normal except for the aphasia. The old twinkle returned to his eyes and with it an enjoyable sense of humor. He was discharged on January 16, eight days after admission.

CASE 3

A 77 year old, right-handed, retired coal miner was admitted for the first time in February, 1951. At that time a Miles resection for carcinoma of the rectum, a transurethral resection for benign prostatic hypertrophy, and a revision of the colostomy were done. Arteriosclerosis, cardiac enlargement, right bundle branch block, and hypertension (approximately 170/80) were noted. He was discharged in June, 1951, four months after admission.

In late September, 1951 the patient suddenly developed dizziness, weakness in the right shoulder and grip, and aphasia. The right arm reflexes were hyperactive. Motor power and speech returned over the next fourteen (14) days on supportive therapy, and he was discharged nineteen days after admission.

In February, 1952, a second transurethral resection was performed. At this time he was given digitalis 0.1 Gm daily because of increasing dyspnea on exertion.

In September, 1952, he had a sudden fainting spell followed by aphasia which cleared in the two hours prior to admission. After a four day period of observation he was discharged.

His fifth admission at the age of 79 was on January 5, 1953 because of episodes of unresponsiveness of four days duration. He was found to have a right pyelonephritis which responded to antibiotic therapy. Fasting blood sugars of 200 and 165 were recorded and changes in the electrocardiogram taken on January 6, 1953, consisting of minor changes in conduction of unknown significance, were noted.

On January 12, 1953 he developed an occlusion of the right popliteal artery which was moderately improved by sympathetic blocks. The pain continued, preventing weight bearing and occasionally requiring demerol.

On March 4, 1953 at 10:00 P.M. he developed a rather sudden onset of convulsions and sterterous breathing. There was flaccid paralysis of the right arm, blowing out of the left cheek, and deviation of the tongue and eyes to the left. He was able to turn his eyes on the examiner, but at rest there was conjugate deviation to the left. He was incontinent of urine, and was aphasic. The reflexes were reduced bilaterally.

At 10:20 P.M. he received 1 mg (1cc) of histamine diphosphate intravenously. Flushing of the face was followed by several grimaces and then rather severe asthmatic dyspnea. This sequence of events covered two to four minutes. Shortly thereafter, he began to move his right arm and generally he continued to improve over the next five to ten minutes until he was able to shake hands, obey simple commands, and on one occasion he answered "yes" to a question. The tongue protruded in the midline, and the blowing of the cheek ceased. Following the injection, the blood pressure fell from 188/80 to 100/0, returning to 120/60 over the next 5-10 minutes.

At 10:45 P.M. he grimaced, flushed, and had a generalized convulsion lasting from 5-10 seconds followed by flaccid paralysis throughout. There was further incontinence of urine and sterterous breathing.

Paralysis of both arms followed the convulsions and a Babinski sign was present on the left. Use of the left arm returned in five to ten minutes, and by 11:20 P.M. he was breathing easily, moving his left hand, and to a less extent his right arm. Extrasystoles were noted for a short period following this attack. As the breathing improved, both pleural and pericardial friction rubs were heard at the apex.

At 12:30 A.M. a third convulsion occurred with blood pressure elevation to 222/102 and tachycardia to 112. At 3:00 A.M. a fourth generalized convulsion was noted, and from 3:15 A.M. until 4:30 A.M. there were convulsive movements of the arms. Incontinence of urine and increased drainage from the colostomy accompanied these attacks. By 6:30 A.M. he had reacted to the point of knowing when he was spoken to, and he was able to say "yes" and "nice."

His speech returned to normal within the next six hours, and his blood pressure resumed its previous levels of 150 to 170 systolic and 80 to 90 diastolic. He was well oriented and mentally clear.

On March 5, 1953 there were changes in the electrocardiogram regarded to be consistent with left bundle branch block. These showed no significant changes during the next five months. On August 10, 1953 he had slight residual weakness in the hand. There were no further episodes, and except for his heart condition and his ischemic right leg he was in good health for his age. He was, at this time, able to walk with some pain.

CASE 4

A 70 year old white housewife suffered a left sided hemiplegia during the night of November 20, 1954. She was found semiconcious on the floor beside her bed in the morning. She complained of substernal pressure.

Her past medical history was non-contributory except for a single short episode of substernal oppression three weeks previously. Examination disclosed the left sided hemiplegia including the face but not affecting the speech. In addition, there was auricular fibrillation at a rate of 80 without murmurs or cardiomegaly. There were no signs of failure.

She was not given histamine because of the question of myocardial infarction. Anti-coagulant therapy was instituted in the hospital and continued after discharge to seven weeks. This was stopped because of a right axillary hematoma that resulted from the pressure of her crutches. She improved slowly on physiotherapy over the next two months and was able to walk with assistance. In the ensuing eight months she suffered five more emboli. Three were treated within an hour by intravenous injection of 1 mg. of histamine diphosphate and two were treated expectantly. All produced left sided hemiplegia preceded by generalized convulsive movements and coma. She recovered from all five. Following histamine the return of strength to the left arm and leg were noticeable within 15 minutes on one occasion and she was walking as usual within 4 hours. On the other occasions some return of function was noted at the same time she was seen by the physician. Full return was noted on the following day. Blood pressure falls were recorded in all instances where she received histamine and were in the neighborhood of 180 systolic to 60 systolic in a matter of seconds returning to 120 systolic within a minute and then slowly rising to the former level over the next 5 to 10 minutes. She did not complain of chest pressure during any injection of histamine diphosphate.

CASE 5

In May, 1955, an 84 year old, right-handed, retired dietician was suddenly struck with thickness and slurring of speech and weakness of the left arm, leg, and face without paralysis or coma. There was loss of orientation of the left sided extremities in space so that they were difficult to control. Blood pressures were known to have been in the neighborhood of 200/100. She received 0.5 mg. of histamine diphosphate intravenously fourteen hours after the onset of her attack. Her blood pressure fell to 50 systolic but no nausea, vomiting, or sweating occurred. Speech returned to normal within one hour

but the arm and leg remained uncontrollable for one week. Ability to walk was delayed for two months. No evidence of cornorary disease appeared but an E. K. G. was not taken.

CASE 6

A 62 year old white male suffered sudden onset of loss of ability to speak with slight clouding of sensation. There were no other neurologic signs or symptoms. He was seen within two hours after the onset and was by that time able to form the word "no." 0.3 mgm of histamine diphosphate was injected. Within five minutes he was speaking sentences but was still slightly clouded mentally. Eight hours later, after a night's sleep, he appeared perfectly normal.

CASE 7

A 73 year old white male had suffered two coronary occlusions in the past two years. He suddenly developed a right homonamous heminopsia, anomia, confusion and a Babinski sign on the right with out other localizing signs. He was seen three days after the attack. By this time he was oriented as to time and place but not alert. One mg. of histamine diphosphate was given over a period of ten minutes. The systolic blood pressure did not fall below 100 mg. Headache and flushing developed. No immediate improvement was noted. The family stated later that he seemed brighter for a few days but in the ensuing weeks he suffered further cerebral damage and died.

DISCUSSION

It is difficult to understand why more has not been written about the use of histamine as apparently it is as specific for the cerebral circulation as nitrites are for the coronary circulation. The severe anaphylactic shock produced in guinea pigs, leading uniformly to their deaths is not produced in man in doses many times the comparable dose which kills the pig[4]. Many may have avoided the drug because of the fear of dropping the blood pressure in oldsters, thereby inviting a myocardial infarction. Soma Weiss, Robb and Ellis[5] found an increase in blood pressure five times more frequently than a fall on rapid intravenous injection of 0.001 mg. per kilogram of the drug. This they ascribed to the increased heart rate and increased cardiac output. The flattening or inversion of the t waves which they found suggested to them that coronary insufficiency was being produced. However, ice water has been shown on occasion to produce such changes. Furthermore, histamine has been reported to dilate the coronaries in the human heart-lung preparation and to increase the coronary blood flow in animals[3]. In all our cases there was a rapid fall in blood pressure varying from 120 to 20 mm systolic and up to 80 mm diastolic (diastolic pressures were not always checked).

Taylor[6] reported producing four cases of coronary thrombosis out of eight treated with intramuscular histamine. He gave 3, 6, 9, and 12 mg. doses of histamine diphosphate in ascending doses daily for one week, then every other day until fifteen treatments were completed. After a period of two to three weeks the treatment was resumed. With the 3, 6 and 9 mg. doses of histamine diphosphate he gave 10 units of insulin, and gave 20 units of insulin with the higher doses. All four myocardial infarctions produced symptoms between the twentieth and twenty-fifth treatments, and all four recovered. Taylor noted blood pressure falls in all eight patients, varying from 110 to 20 systolic and 64 to 12 diastolic. His study was conducted to determine if any improvement in the mental condition of these eight psychotics with cerebral arteriosclerosis could be produced. He found none.

The question arose as to whether a myocardial infarction was produced in Case 3. The patient had a profound drop in blood pressure. There were changes in his electrocardiogram the day following the injection, and a friction rub was heard approximately one hour after the injection. However, there were changes indicating a conduction defect noted on his electrocardiogram taken two months earlier. No further changes developed in subsequent electrocardiograms taken serially after the first post-convulsive tracing. The most we can say now is that myocardial infarction is

likely to be a complication of this treatment. Only careful studies in the future will determine its importance.

Asthmatic wheezing can be produced by histamine in allergic individuals, but not in normal people[7]. Case 3 was not known to have any allergic tendencies, but developed a rather severe asthmatic attack. This passed in approximately half a minute. It would seem wise not to inject histamine intravenously into asthmatics unless preceded by an intravenous injection of an antihistamine. Although intravenous antihistamines are of no benefit in the usual asthmatic attack, they do protect against the histamine induced attack. In those individuals in whom an unexpected attack develops and does not recede in two to three minutes, an intravenous injection of 20-30 mg. (2-3 cc) of benedryl would be indicated. Adrenalin is specific for these induced attacks, but of course, should be used with caution. Aerosol or intravenous isopropylarterenol, or slow intravenous aminophylline are to be preferred.

Hyperacidity is to be considered in those peptic ulcer cases who receive histamine. Case 2 had been treated for ulcer three years prior to his histamine injection, but there was no recurrence of symptoms. Among the age group where cerebral vascular occlusions are most common, it is unlikely that there will be an excessive pouring-out of acid. In fact, H. G. Magena, a Spanish investigator, reported that with rapid intravenous injection of histamine there was no significant rise in gastric acidity[3].

The specific cerebrovascular dilator action of histamine has been demonstrated[3]. A subcutaneous dose of 0.25 mg. of the phosphate will increase the amplitude of the brain pulsation 725%. (Nicotinic acid in a 50 mg. intravenous dose produces a 65% increase). A slow intravenous drip 18-30 drops per min.) of 0.0011% solution of histamine diphosphate results in a 300% increase in amplitude. When the cranium is opened, the dilation appears rather striking in that the cerebrum seems to flush and vessels appear that were not visible before the injection of histamine. The beneficial effects to be expected in strokes will probably be from development of collateral circulation through dilating spastic vessels. Horton cites the case of a hemiplegia due to ligation of the internal carotid artery that was relieved by a slow intravenous drip.

Histamine is normally present in the blood stream in concentrations of 2.0 to 7.5 micrograms per 100 cc[5]. It is higher in asthmatics, but falls during an asthmatic attack. It can be isolated from every tissue in the body, including the peripheral nerves but excepting most of the rest of the nervous tissue. It is present in the leukocytes and particularly in the granulocytes. It is rapidly removed from the blood by the liver, lungs, and kidneys. Its action becomes evident in the short space of time it takes to reach the brain; most of the effects are gone in two minutes, but vasodilation continues up to ten minutes. Cerebral vasodilation can be produced without significant peripheral dilation. Furmanski and his associates have reported on 75 cases of good results[1,8]. They use 5.5 mg. of histamine diphosphate in 1 liter of fluid. The injection is started at 20 drops per minute. If no facial flush is produced in two-three minutes the speed is increased in steps of 5-10 drops at two to three minute intervals until an increase in pulse rate or flush is produced. The rate is reduced just below this point, which they state is seldom more than 80 drops per minute. The infusion is given four to six hours twice daily and continued for two weeks before given up as of no benefit. Nicotinic acid is used orally between infusions in doses of 50-100 mg. every three hours. More than three-fourths of his last 50 patients showed 40% of better improvement. Twelve patients showed no improvement. All except four of the last 50 patients showed motor involvement.

Horton, who has been using histamine since 1927, has reported similar good results with slow intravenous drips. This is usually a hospital procedure. The loss of the voice or of the use of an extremity is so frightening to the patient or his family that they do not delay in calling a physician at any hour. Nerve tissue is most

sensitive to anoxia. If spasm is a factor the earlier it is relieved or that collateral circulation established, the less chance there is of permanent damage to the area of ischemia. It is, therefore, highly desirable that the physician who first sees the patient have in his hands some means of relieving the anoxia.

On arriving at the patients bedside the physician's first problem is to ascertain the diagnosis. Hemorrhage should be ruled out if possible. Hemiplegia is not frequent in either subarachnoid hemorrhage or epidural bleeding.

Unfortunately, intracerebral hemorrhage can not always be differentiated from cerebral thrombosis and embolus, but there are several things which may put the practitioner on his guard. For instance, sudden onset of unconcousness, deepening coma, elevated blood pressure, bilateral Babinski, and conjugate deviation of the eyes are twice as common in hemorrhage as in thrombosis. Vomiting is twelve times more common, headaches eight times, Cheyne-Stokes respiration five times, and quadriplegia four times more common. There are laboratory aids in the differentiation, but they are of little help at the bedside. Thrombosis is three to four times more common than hemorrhage. The prognosis is definitely poorer in the latter. Embolism is usually sudden in onset, and the history or physical examination often reveals a source of the embolus. I would feel at the present time that patients with coma, convulsions, headache, stiff neck, vomiting, or constant conjugate deviation of the eyes should not receive histamine. Perhaps Case 3 had a hemorrhage. He exhibited convulsions and a Babinski on the opposite side. However, with his incomplete paralysis, lack of coma or shock, and his previous history of thrombosis, it was felt worthy of trial. The asthmatic attack and further convulsions were sufficient to discourage further histamine therapy.

Histamine is variously referred to in the literature as histamine, histamine base, histamine phosphate, histamine diphosphate, and histamine acid phosphate. The first two are interchangeable for all practical purposes, as are the last three. However, 1 mg. of histamine base is equivalent to 2.75 mg. of the phosphate (diphosphate), so it is important to know whether the base or the salt is being used in determining the dose. There are several investigators who have used 1 mg. of "histamine" intravenously, but from their writings it is difficult to determine whether this was histamine base or histamine diphosphate. It would seem that 1 mg. of histamine base could not do great damage with such a transitory action, but since 1 mg. of histamine diphosphate (0.36 mg. of the base) produces profound vasodilation, there is little reason for using a larger dose at this time. In doses over 0.1 mg. of histamine diphosphate a headache is produced which may last up to two hours, but is usually transitory. Most of the preparations are marketed as histamine diphosphate which is shortened on the label to phosphate by one pharmaceutical company. One cc ampules of 1 mg. histamine diphosphate (Parke, Davis and Co.) and one cc ampules containing 3.75 mg. of histamine diphosphate (Abbott) are marketed. Actually a 5-10 cc ampule containing 1 mg. of histamine diphosphate is needed for more accurate dosage and this has been suggested.

Since the duration of action of histamine is so short, it is necessary to continue vasodilation with an oral preparation. Papaverine 1 to 4 mg. or niacin or nicotinic acid (not the amide) 50-100 mg. four to six times daily, are suggested.

A great number of "strokes" recover without any treatment. It will, therefore, require hundreds of cases to obtain a statistically significant series. These seven cases took one investigator four years to collect. Even had there been as dramatic improvement in all, as in Case one, the small number of cases would not permit definite conclusions. However, these experiences have left me with the clinical impression that those given histamine recovered more rapidly and completely and the more so the sooner after the episode the injection was given. Histamine, is our best cerebral vasodilator and fits easily into the emergency kit. The original fear of

anaphylaxis from this drug has not been borne out during the past twenty odd years of investigation. The time has come to study it as a clinical tool at the bedside with adequate blood pressures, alternation of cases, careful records, and the investigator's critical open mind. I expect to pursue this matter further, and it is hoped that others will be stimuated to do likewise.

SUMMARY

1. Seven cases of cerebral vascular occlusions are presented who were treated with 0.27 to 1 mg. of histamine diphosphate intravenously as a single injection.
2. Clinically, they appeared to improve faster following injection than would be expected without therapy.
3. The rationale for the use of this drug is discussed, along with its contraindications, toxicity, and dosage.
4. Recommendation is made that further investigation be carried out.

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HEMIPELVECTOMY
(Hindquarter Amputation)

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It is not surprising that an operation so extensive as hemipelvectomy is often rejected by both surgeons and family physicians as well as patients. Yet, in certain situations, it is the logical curative operation, particularly for various types of cancer and occasionally, in infectious disease. The reasons for its rejection are not hard to define. The early attempts at hemipelvectomy had a high mortality rate. As with all operations for malignant disease, the operation frequently fails to cure. The surgical difficulties have been greatly exaggerated. The deformity due to operation has also been greatly exaggerated.

The radical surgical removal of most cancers constitutes a mutilation. The most common example of course, is radical mastectomy for carcinoma of the breast. The mutilation can be concealed by prosthetic devices and proper clothing, but none the less, to the patient and sometimes to her physician, the disfigurement involved is a real problem. Likewise, the removal of the rectum by abdominoperineal resection constitutes a severe mutilation to the patient, even though it may not be apparent to his friends. The psychological problem of accepting such necessary surgery becomes more acute when the operation involves the head and neck or the extremities. As a result, many potentially curable patients refuse or postpone operation, sometimes on the advice of well-meaning physicians, until the prospect of cure by any means is very slim. The rapid and wide acceptance of radiation therapy in the treatment of cancer unquestionably came about in the hope of avoiding disfigurement. Radiation therapy, including both x-ray and radium therapy, is a very valuable tool in the treatment of certain anatomic and histologic types of cancer, but the limitations of radiotherapy are now fairly well known, and for many varieties of cancer it is not a useful agent.

Most of the sarcomas, including those arising from fibrous tissue, nerve sheath, muscle, bone and cartilage, are very resistant to radiotherapy and seldom are controlled or even alleviated by such treatment. Among the bone tumors, Ewing's tumor and giant cell tumor of bone are frequently but not invariably radiosensitive. Liposarcoma frequently is radiosensitive and the various malignant lymphomas are

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very sensitive to radiation therapy. However, when dealing with the first group described above, we have little to offer the patient except the complete surgical removal of his disease or palliation of symptoms by narcotic medication or by the neurosurgical approach to the relief of pain. In general, if there is a prospect of offering the patient permanent cure, that procedure should be followed which is most likely to cure him. If cure is unlikely, we should then seek the best method of palliation. Narcotic medication is often the best approach but frequently is unsatisfactory. Hence, there is a place both for curative and for palliative surgery in the treatment of cancer.

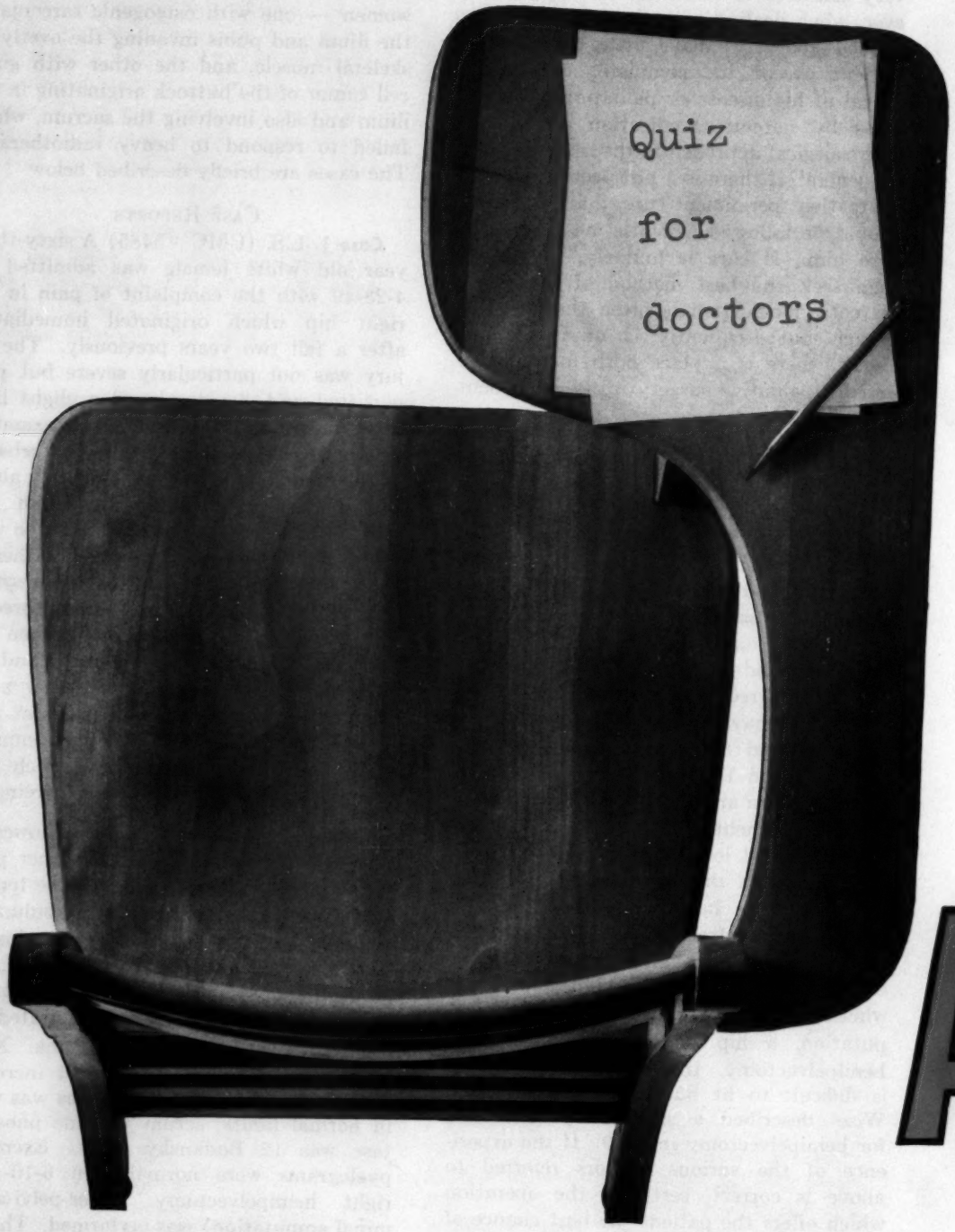
In that limited group of patients whose cancer involves the bone or soft parts of the upper thigh, groin, buttock or pelvic bones, the only operation which may prove curative is hemipelvectomy. Disarticulation through the hip joint is almost sure to fail. The early attempts at hemipelvectomy were usually unsuccessful and the operation carried with it a very high mortality. During recent years, numerous series of cases[1-6] have been reported with no mortality and there are other series not referred to in this paper with similar results. Modern anesthesia and modern medical management, which includes replacement of blood loss, attention to the body chemistry, and the prevention of infection by antibiotics, have made the operation singularly free from risk. The experience of numerous observers has been that the mutilation involved is very little different whether the patient has a high thigh amputation, a hip joint disarticulation, or hemipelvectomy. In any case, a prosthesis is difficult to fit but it can be obtained. Wise[7] described a satisfactory prosthesis for hemipelvectomy in 1949. If the experience of the various authors referred to above is correct, certainly the operation which offers the patient the best chance of cure should be performed rather than operation which is very likely to lead to recurrence of his cancer, provided of course the operative risk is no greater.

Our personal experience with hemipelvectomy is limited to two cases, both in women — one with osteogenic sarcoma of the ilium and pubis invading the overlying skeletal muscle, and the other with giant cell tumor of the buttock originating in the ilium and also involving the sacrum, which failed to respond to heavy radiotherapy. The cases are briefly described below.

CASE REPORTS

Case 1. L.S. (CMC #5485) A sixty-three year old white female was admitted on 4-28-49 with the complaint of pain in the right hip which originated immediately after a fall two years previously. The injury was not particularly severe but pain persisted and she developed a slight limp some four months later. X-ray examination of the pelvis showed some disturbance of the bone architecture immediately above the right acetabulum in the ilium and pubis, which was not considered to be very significant. The patient received diathermy for a few weeks without benefit. Her symptoms did not increase until about three or four weeks prior to admission, when the lameness became more pronounced and she developed a distinct limp. Another x-ray examination showed a large irregular area of destruction in the right ilium immediately above the acetabulum which was thought to be due to metastatic carcinoma.

General physical examination showed no evidence of primary tumor in other parts of the body. There was slight bone tenderness just above the right acetabulum on vigorous percussion. X-ray examination showed a polycystic destructive lesion. Aspiration biopsy under fluoroscopic control was performed and the tissue aspirated was reported as showing bone sarcoma. X-ray examination on 5-27-49 showed increased bone destruction. The blood urea was within normal limits; serum alkaline phosphotase was 12 Bodansky units. Excretory pyelograms were normal. On 6-10-49 a right hemipelvectomy (inter-pelvi-abdominal amputation) was performed. The patient made an uneventful recovery and was discharged from the hospital on 7-29-49, walking on crutches, some six weeks after operation. The pathologist reported a primary osteogenic sarcoma of ilium and



A

(you probably know every answer!)

Q. Which is today's most widely prescribed broad-spectrum antibiotic?

A. ACHROMYCIN — it's first by many thousands of prescriptions.

Q. What are some of the advantages of ACHROMYCIN?

A. Wide spectrum of effectiveness.
Rapid diffusion and penetration.
Negligible side effects.

Q. Exactly how broad is the spectrum of ACHROMYCIN?

A. It has proved effective against a wide variety of infections, caused by Gram-positive and Gram-negative bacteria, rickettsia, and certain viruses and protozoa.

Q. In what way are ACHROMYCIN Capsules advantageous?

A. For rapid and complete absorption they are dry-filled, sealed capsules (a Lederle exclusive!) No oils, no paste...tamperproof.

Q. Who makes ACHROMYCIN?

A. It is produced — every gram — under rigid quality control in Lederle's own laboratories and is available only under the Lederle label.

ACHROMYCIN*

Hydrochloride
Tetracycline HCl Lederle

Lederle

LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY PEARL RIVER, NEW YORK

*REG. U.S. PAT. OFF.

pubis with extension into the overlying skeletal muscle: the lymph nodes were not involved.

Prior to operation, x-ray examination of the lungs was negative for metastatic disease. However, the patient developed a hacking cough and rapid loss of weight. Subsequent x-ray examination showed the presence of pulmonary metastatic sarcoma and she died on 9-27-49 from metastasis.

Case 2. M.L. (CMC #5907) A white female, aged 42, was admitted on 3-15-51 with the history of pain in the left buttock and slight limp beginning six months earlier, following her tenth term pregnancy, which became severe enough to disable her by December 1950. An x-ray examination in January was considered negative but films made a few days prior to admission showed extensive destruction of the left ilium and left side of the sacrum. For a month or two pain radiated to calf and heel and was aggravated by sitting or lying supine.

Examination was negative except for moderate pallor and the local lesion: a firm elastic mass, occupying the left buttock, measuring 25x15x10 cm. in size. The superficial veins over it were engorged and skin temperature was elevated. The clinical impression was soft part sarcoma involving ilium and sacrum secondarily. Aspiration biopsy revealed no atypical cells but numerous giant cells of the foreign body type were seen in the smears.

A surgical biopsy was performed on 3-21-51. The tumor was a partially encapsulated, spongy, semi-necrotic mass containing large vascular spaces and apparently infiltrating the gluteal muscles. The preliminary pathological report was cavernous hemangioma. Consulting opinions from the Canadian Tumor Registry and from the Armed Forces Institute of Pathology included benign giant cell tumor, malignant giant cell tumor, malignant angioma, necrosis of muscle, unusually vascular giant cell tumor, angiosarcoma.

The patient was given a prolonged course of x-ray therapy at the Carpenter Memorial Clinic* with regression of her mass. Her biopsy incision broke down with prolonged drainage of necrotic tumor tissue. X-ray examination, which had shown progressive bone destruction prior to therapy, showed some bone regeneration. Early in 1952, gradual recurrence of tumor began and the patient had repeated increasingly severe and finally almost exsanguinating hemorrhages from the still draining wound. She was readmitted to the hospital and after multiple transfusions, a left hemipelvectomy was performed. The final pathological report was benign giant cell tumor.

Postoperatively, skin necrosis of the distal skin flap complicated her course, requiring a pedicled skin graft to close the defect. The patient remained in the hospital for eleven weeks. She was discharged, walking on crutches. As of this date (9-9-55), she is in good health, does her own housework, and is raising her large brood of children and grandchildren.

Hemipelvectomy was recommended and refused by a third patient, a young woman who was seen after two operations for myosarcoma of the lower inner thigh. She had instead a high thigh amputation elsewhere (for which she was never able to obtain a satisfactory prosthesis), and returned to us for iliac node dissection later. Unfortunately, her metastases then extended into the lumbar nodes and the operation was futile. We can only surmise that an earlier hemipelvectomy (which includes most of the pelvic nodes) might have offered her a chance for cure. It is of interest that the limited amputation was recommended by a cancer surgeon who is on record in the literature as a proponent of hemipelvectomy.

OPERATIVE TECHNIQUE

The operative technique has been described by several of the authors quoted and a detailed description would not be suitable here. If however, one considers a brief description, it is easily seen that there is no greater difficulty involved than in hip joint disarticulation or high thigh amputation. The usual incision follows the crease of the groin and is carried laterally and then carried slightly downward from

the anterior-superior spine across the lower buttock around the upper inner thigh, joining the anterior incision just lateral to the scrotum or vulva, as the case may be. The attachment of the abdominal muscles to the pubis and the ilium are divided through their tendinous portions so that bleeding is not excessive. The only major vessel in the anterior abdominal wall is the inferior epigastric artery. Posteriorly, the quadratus lumborum is divided at its insertion into the ilium. The peritoneal cavity need not be entered but the peritoneum, with its contents, is dissected away from the pelvis, the ureter going with it, until the common iliac artery is encountered. The external iliac artery and vein are ligated at their origin. The hypogastric artery is preserved but may temporarily be controlled by the tourniquet. Subsequently, its gluteal branches have to be divided. The major nerves (femoral, obturator and sciatic) are divided at a somewhat higher level than they would be at a high amputation. The only muscle bellies to be divided are the psoas and pyriformis. The levator ani is detached near its tendinous insertion into the pelvis. The symphysis pubis can be divided through its cartilagenous portion with a scalpel unless it is calcified. The sacro-iliac joint is divided by an osteotome or Gigli's saw. If necessary, part of the sacrum may be removed.

By contrast, a hip joint disarticulation involves dividing eighteen relatively large muscles through their vascular portions, since the tendinous insertions are higher up and much more hemastasis is required. A high thigh amputation likewise involves dividing large muscle bundles. Particularly with soft part sarcomas, their exact upward extensions are difficult to determine: they may extend to a considerable distance within the muscle sheaths.

CONCLUSIONS

Under present conditions, hemipelvectomy is an operation relatively free from risk. If the operation is performed for cancer which cannot otherwise be adequately treated, it is fully justified. The deformity produced is little greater than that produced by high thigh amputation or disarticulation at the hip. Prosthetic devices are available for those patients who wish to obtain them (our surviving patient gets along very well on crutches and does not wish to go to the expense of prosthesis.) The technical surgical problem is no greater, and in some ways less, than disarticulation at the hip joint. The operation should not be performed if distant metastases are present, unless it is essential for palliation of pain.

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THE UNSOLVED FRACTURE

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In 1936, just prior to the introduction of the three-flanged nail by Smith-Peterson, the intracapsular femoral neck fracture was rightly known as "the unsolved fracture". With the advent of the Smith-Peterson nail results were greatly improved and a much higher incidence of bony union resulted. However, in 1953 at the American Medical Association meeting McCarroll, in delivering the chairman's address to the orthopaedic section, spoke on this subject and the title of his address was again "The Unsolved Fracture".

Key and Conwell in their book state that of those patients who survive, 40-60 per cent can be expected to have bony union with a fairly good hip. Other clinics report the incidence of bony union as 60-80 per cent. Certainly, we have made very little progress in the treatment of this very difficult fracture in the past twenty years.

In the face of such poor results it is a great mystery why we persist in using this method when the multiple pin technique of A. T. Moore and others is reported as giving far superior results. Moore, in reporting on 103 cases followed two to fifteen

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years, reports 94 per cent primary bony union. The incidence of aseptic necrosis was not reported though it was of course encountered.

In 1934 Moore conceived the idea of using several small stainless steel nails in the treatment of fractures about the hip joint. His idea was to obtain as complete immobilization as possible, feeling that the poor results were due more to inadequate fixation than inadequate blood supply.

The principle involved is one familiar to all mechanical engineers. A block of concrete placed horizontally is subjected to forces of tension and compression. At the periphery of the block the forces are greatest and, as we approach the center, the forces diminish, so that at the center we encounter a neutral axis. To place a reinforcing piece of steel at the center only, is to choose the worst possible site. As anyone who has passed a construction project knows, the reinforcing bars of steel are placed near the four corners of the concrete block with an additional one in the center.

The human counterpart of the concrete block is, of course, the femoral neck where the lines of stress and strain are clearly seen at the periphery of the bone. In an effort to take advantage of this fact a low insertion of the Smith-Peterson nail has been recommended. This is rather difficult because of the size of the nail and, in addition, a low insertion of the nail in the femoral head is undesirable because it cannot penetrate as far and thus fixation is not as complete.

The four pin insertion of Moore in the four quadrants of the neck and head reinforces the bone where the lines of stress and strain are concentrated and where the bone is the strongest. An added advantage to the Moore pin is the threaded distal half which prevents migration, a phenomenon often seen in Smith-Peterson nailing.

With such obvious advantages it is difficult to understand why this technique has never become popular. Perhaps it is because the Smith-Peterson nail is easier to insert and looks much stronger. Possibly surgeons are afraid to rely on the strength of the more slender Moore pins.

The author's own cases are far too few to be of clinical significance; however, one case was most illuminating. The patient was an 80 year old man with a massive bony frame. When one looked at the x-ray of the fractured hip one was immediately impressed with the great size of the femoral neck and how small and lonely a single Smith-Peterson nail would look in that neck, and possibly how ineffective. Not wholly trusting the Moore pins it was decided to place a Smith-Peterson nail low in the neck and two Moore pins above. Four weeks later x-rays showed that the Smith-Peterson nail had backed out with its proximal end at the fracture line. The Moore pins were unchanged.

It was suggested to the patient at this point that the Smith-Peterson nail be removed and be replaced with two additional Moore pins. The patient declined this offer of further surgery. Fourteen months later, when last seen, there appeared to be solid bony union, the patient was walking with no support, and he was symptom free. This, of course, cannot be interpreted as a final result but, whatever the result, the fact remains that a Smith-Peterson nail backed out of a femoral neck fracture and the two Moore pins, not ideally placed, provided adequate fixation for union to take place.

SUMMARY

The technique of placing four parallel pins in the four quadrants of the femoral neck and head is to be preferred over the Smith-Peterson nail because of the inherent mechanical principles involved.

Moore's end result study of 103 cases of intracapsular neck fractures followed two years or longer showed 94 per cent bony union. This is certainly a far better result than has been reported from using other techniques.

It is unlikely that the average surgeon who pins hips can equal these results, whatever technique is used, because Moore's experience with 1000 cases or more has given him an opportunity to perfect his technique that few surgeons ever have.

The importance of an accurate reduction

of the fracture has not been stressed in this paper because all surgeons are in agreement on this point.

The underlying mechanical principles of the two techniques have been discussed; the statistics of the various followup studies have been presented; and the only logical conclusion is that we give the Moore technique an opportunity to prove itself. *1205 Gilpin Avenue.*

THE BUFFY COAT SMEAR
A Useful Aid in Hematological Diagnosis

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The object of this note is to call attention to the buffy coat technic, the usefulness of which is not too widely recognized. This technic, the preparation, staining, and examination of buffy coat blood smears is often of great value in helping to elucidate hematological problems, particularly those associated with a low total white cell count, and may enable a diagnosis of leukemia in the aleukemic phase to be made much earlier than it would be by the examination of ordinary blood smears; or, on the other hand, it may help in the exclusion of aleukemic leukemia in cases associated with a low total white cell count not due to leukemia.

The technic is a simple one and easy to carry out. The principle is that oxalated blood when centrifuged falls naturally into three layers — a lower layer of red blood cells, immediately above which is a thin, grayish-white colored layer known as the buffy coat, consisting of white cells and platelets, and above this, a layer of plasma. The buffy coat layer furnishes a rich source of leukocytes and provided that it is withdrawn carefully and not diluted over much with the red cell layer or the plasma, smears made from it consist almost entirely of white cells and platelets. Herein lies the great value of the buffy coat smear, since when properly made it provides a much greater number of leukocytes for study than can be obtained in an ordinary blood smear, and this is of particular value when the total white cell count is low. Ordinary blood smears prepared from blood with counts of 4,000 white cells per cubic millimeter and below may offer considerable difficulty in performing the differential white cell count since the cells are so comparatively few that the observer may have to spend a long time examining the smear before finding sufficient cells for an accurate count. Under such circumstances any abnormal white cells which are present, especially if few in number, may be so scanty that they may be overlooked, but by using the buffy coat smear, which provides a much larger number of white cells for study, the chance of finding any abnormal cells which may be present is very much greater.

The technical details are as follows: Blood is obtained by venipuncture and drawn into a tube containing double oxalate as an anti-coagulant, the usual amount of blood drawn being 5 cc. The blood is first spun down in the collection tube for 10 minutes at 2,500 revolutions per minute. Following this centrifugation, the buffy coat layer together with some of the plasma layer and red cells is drawn off and transferred to a Wintrobe sedimentation rate tube. This second tube is then centrifuged for a further 10 minutes at 2,500 revolutions per minute. The next step consists of withdrawing the buffy coat layer from the Wintrobe tube by means of a capillary pipette, and this step requires care and precision on the part of the investigator. If it is not properly carried out, unsatisfactory smears will result since the leukocytes will be diluted either by plasma or by red blood cells. With practice, however, it is possible to withdraw the buffy coat layer alone and the drop so obtained is expelled onto a glass slide or slides and smears prepared from it as one would prepare ordinary blood smears. These smears are stained with Giemsa or any other of the Romanowsky stains preferred by the examiner, and are studied under the oil immersion lens, particular attention being paid to the presence or absence of abnormal cells of the red or white cell series. It is of particular importance that the blood should

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be processed as soon as possible after drawing since the white cells rapidly disintegrate, and any blood which has stood for more than 2 hours following its withdrawal should not be used for the preparation of buffy coat smears.

The following three cases will illustrate the value of the buffy coat technic:

Case 1. T. C., a 17-year-old male was admitted to hospital complaining of a sore throat and a fever of three weeks' duration. His family had also noted an increasing pallor of his skin. An admission blood count showed a red cell count of 1.5 million cells per cubic millimeter and a hemoglobin level of 4 grams per cent. The white blood count was 1,200 white cells per cubic millimeter of which 90% were reported as lymphocytes, 7% as neutrophils, 2% monocytes, and 1% basophils. No abnormal cells were noted in the routine blood smears in which white cells were difficult to find because of the low total count. Buffy coat smears were prepared and in these a fair number of undifferentiated white cells which were felt to be of "blast" type were noted. Polymorphonuclear leukocytes were very scanty and occasional normoblasts were seen. From these smears it was felt that the patient was suffering from an acute leukemia of lymphocytic type. Accordingly, a bone marrow study was performed and the smears prepared from the bone marrow showed extensive marrow replacement by young white cells, most of which were of the "blast" type. It was felt that the bone marrow was compatible with an acute leukemia of lymphoblastic type, and in conjunction with the peripheral blood picture the diagnosis of acute lymphoblastic leukemia in an aleukemic phase was made. The patient died 18 days after admission, autopsy confirming the diagnosis of acute leukemia.

Case 2. V. B., a 54-year-old male was admitted to hospital complaining of pains in the chest and back, sweats, chills, and a cough. From the physical examination it was felt that the patient was suffering from an acute lobar pneumonia and he was treated accordingly. A blood count, however, revealed only 850 white cells per cubic millimeter, but the differential white cell count although extremely difficult to perform owing to the paucity of white cells in the routine smears, was felt to be of normal proportions and no abnormal cells were noted. In view of the extremely low count, however, buffy coat smears were advised and these were successful in providing an adequate number of white cells for study. In these smears a few "blast" cells and promyelocytes were noted together with a considerable number of mature granulocytes. From the presence of these immature cells, it was thought that the patient might be in the aleukemic phase of acute myelogenous leukemia. Bone marrow smears showed marked myeloid hyperplasia with many "blast" type cells present together with numerous promyelocytes and myelocytes, these appearances being compatible with an acute myeloid leukemia. The patient expired 12 days after admission, autopsy confirming the diagnosis.

Case 3. — a 55-year-old female was admitted to hospital complaining of sore throat and loss of voice. Routine blood counts performed on admission gave values of 3.5 million red cells per cubic millimeter with 10 grams of hemoglobin per 100 cc., the total white cell count being extremely low and varying from 400 cells per cubic millimeter to none per cubic millimeter. No abnormal white cells were seen in any of numerous routine blood smears prepared. The clinical impression was that the patient was suffering from an agranulocytosis, probably due to certain drug therapy which the patient had been receiving, but it was felt that an aleukemic type of leukemia had to be excluded. Accordingly, buffy coat smears were prepared and these showed a few lymphocytes and polymorphonuclear leukocytes which were present in approximately equal proportions. No abnormal white blood cells or red blood cells were seen in these smears, thus helping to exclude the diagnosis of leukemia. Examination of the bone marrow performed on this patient showed only occasional myelocytes and nucleated red cells, the appearances being compatible with an aplastic bone

marrow. The patient died 5 days after admission and autopsy confirmed the diagnosis of aplastic anemia.

SUMMARY

Attention is drawn to the value of the buffy coat technic in helping to elucidate hematological problems, particularly those associated with a low total leukocyte count, and examples are given of cases in which the technic proven helpful.
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THE DELAWARE PHYSICIAN OF 1800*

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The physician in Delaware one hundred and fifty years ago occupied a somewhat different place in our society from that which he occupies today. He was, for instance, the one trained scientist in the community. In Wilmington today the doctors of medicine are surrounded by hundreds, perhaps thousands, of other trained scientists, doctors of philosophy in chemistry and physics, masters and bachelors of arts and sciences — probably more here than in any city of similar size in America. But in 1800 this was not so, and the physician was the one scientist in the community, the one person upon whom people might call for information on scientific problems. In the 1780's, for example, when the Philadelphia Society for Promoting Agriculture chose a man in each state to help it answer a group of forty-four queries on American agriculture that were submitted by a French scholar (and physician), its choice in Delaware was quite naturally a physician. A physician's scientific training equipped him to observe and to measure accurately, and so it was to Dr. James Tilton, who was soon to become first president of the Medical Society of Delaware, that the Agriculture Society turned for an accurate report on the state of Delaware agriculture. Since he was the only one of the society's correspondents who answered these forty-four queries, his notes on the state of agriculture in 1788 have a unique value.

The physician was not only the one trained scientist in the Delaware town of one hundred and fifty years ago; he was one of the very few educated men. Some ministers and lawyers, but few others, had had as much schooling as the physician; therefore he was called upon for many services besides his professional chores. Dr. John Vaughan, for instance, edited a newspaper in Wilmington, and Mathew Wilson, besides practicing medicine, was a parson and a schoolteacher in Lewes. Physicians were prominent among the trustees of all of the early academies, the early secondary schools of Delaware.

Because the physician was an educated man in a society where formal education was respected but uncommon, he was a natural leader in his community and his state. He had more time for civic chores, of course, than does the physician today, partly because of the state of transportation and communication. The physician of 1800 was geographically limited in his practice by poor roads and slow horses. The towns were small and often had more resident physicians then than now. Nor could the physician's hours of retirement be interrupted by a telephone. Even if he sought to spend his leisure in professional reading, medical literature was neither so vast nor so accessible that it would occupy him for long.

Perhaps these facts led him to more varied enterprises than his modern successor finds time for. At any rate, it is demonstrable that the early physician of Delaware was an active leader in his state. Our first president — such was the title of our chief executive immediately after independence was claimed — was a Wilmington physician, John McKinly. Our last president and first governor (the title was changed by the constitution of 1792) was a physician from near Middletown, Joshua Clayton. Clayton became a United States Senator in 1798, and his Delaware colleague then was another physician, Henry Latimer, of Newport. A year earlier, Dr. Nicholas Way, of Wilmington, had died in Philadelphia, where he was director of the United States Mint by appointment of

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President Washington. James Tilton had been a member of Congress and was, like John Vaughan, a prominent figure in the Jeffersonian party. Twenty-five years earlier Dr. Charles Ridgely had been a prominent legislator and a party leader in Kent. John Haslet, another Kent physician, commanded the Delaware regiment in the Revolution and by his death at the Battle of Princeton, became our most famous martyr of that war.

The physicians of Delaware, as a class, came from families of at least modest prosperity. Well-to-do parents were almost essential, because the training of a physician was costly in both time and money. Poor boys did, of course, become physicians, but they were the exceptions rather than the rule. Dr. Nicholas Way's mother, we know, kept a school in Wilmington, and another mother's efforts are suggested in a letter of recommendation, October 17, 1766, from Mathew Wilson, of Lewes, to Dr. Charles Ridgely, of Dover:

"As I understand you want an Apprentice at this time, I cannot but recommend Mr. James Rench . . . His mother has, tho' with difficulty, kept him at learning until he has read Juvenal and also Lucian, under a very careful and correct Teacher, so that he must now be well grounded in the Latin and Greek Languages. I doubt not he will be Teachable, complaisant and careful of your business. I doubt not . . . you will make the terms as easy as possible. I would gladly have taken him, but have too many at present."

As this letter indicates, apprenticeship was a common form of vocational education in the eighteenth century in medicine as in other "arts and mysteries." Formal training, through lectures and demonstrations, did exist but was for the few rather than for the many. Of those who studied medicine in school, a great number went abroad, primarily to Edinburgh, and later to London and Paris. The chief resort for those who were schooled in medicine at home was the College of Philadelphia (later the University of Pennsylvania), where, in 1768, the first class in medicine ever to be graduated from an American college included two Delawareans, James Tilton and Nicholas Way. The degree which they received was, of course, a bachelor's degree, bachelor of medicine, or, they said, of "physick." Three years after graduation, a successful practitioner could secure the doctorate by presenting an acceptable thesis to the medical faculty.

But for most of Delaware's aspiring physicians, it was not school at Edinburgh or Philadelphia, but apprenticeship, perhaps in Philadelphia, or in Wilmington, Dover, or elsewhere, that was the pathway to the practice of medicine. Sometimes this was a formal apprenticeship with terms of indenture carefully drawn and the young man "bound" thereto as if to an artisan's trade, but usually the relationship seems to have been more informal, though of course a fee was customarily paid by the student for the privilege of learning the professional mysteries. Too little is known of the Delaware apprentice's daily routine, but we do have a few glimpses of his life. We have, for instance, the report of a lecture that Dr. James Tilton gave in Dover in 1770 for the benefit of his apprentices. Thomas Rodney, the younger brother of Caesar, visited the class and describes the occasion in his diary, under the date of Saturday, November 10, 1770 [I have modernized punctuation and capitalization, but not spelling]:

"Doctr. Tilton having a good subject for desection, gave me an invitation to go and see him perform. I went accordingly. The first part of his performance was a short lecture on the human frame, whereby he gave a general acct. of the body, describing only its larger or common divisions. He then proceeded to desect, beginning with making an incision or long gash from the waist up to the breast, cutting in 'till he came to the muscular parts. He then parted the skin and membrane, down the left side & lay'd bare what he call'd the oblique decending mussel or mussels. He then peal'd off that mussel, and lay'd bare what he call'd the oblique ascending mussel or mussels, which seem to take their rise near the hips and back-bone, and tend up towards the line of the belly, being nearly at [right] angles with the oblique descending mussels, which take rise at the shoulder and back-bone and tend downwards to the rimm of the belly. The two mussels lie one over or (if you please) under the other, each spreadg. over all that side of the belly. He then lay'd bare a mussel, which tends from the breast down to the waist and about 3 in. wide. This mussel seems to be exceedingly curious; it is in a manner divided into 4 parts by a kind of membrane suted to that purpose, which makes it very strong and able to support the belly. If it was not for those divisions, this mussel wou'd be so weak by reason of its length that it wou'd not be able to perform its office. The doctr. then lay'd bare what he call'd the transverse direct mussel which takes rise along the back bone & tends directly round to the line of the belly in a horizontal position, passing under the two mussels first men[tione]d. He then took out the bowels, but it being late he did not de-

scribe any of the internal parts, otherwise than to run over their names to the young students."

At the time of this lecture Tilton was but two years out of college, but, probably from the very fact that he had gone to college, his practice must have begun particularly auspiciously since he attracted students so soon. Nathaniel Luff, another Kent County lad, had no such easy time getting started. From an autobiography that Luff wrote for the benefit of his descendants, we know that he studied medicine with "a distant relation," Dr. George Glentworth, in Philadelphia and began his practice somewhere on the road between Lewes and Dover. He rented part of a house and stable room for a horse, plus privileges for a servant, a Negro boy, and he made arrangements, being a bachelor, to board with Edward Fisher. Because he had a juvenile appearance, Luff sought "both in dress and address" to seem brilliant. Aided by family influence, he soon had a large practice, but it did not last. After some years he moved to Frederica and enjoyed a large practice again, but again it dwindled, partly, according to Luff, because his patients got well and partly because his second patient died of the fever.

"Unsuccessfulness in the practice of physic," declared Luff, "however judicious the prescriptions, or peculiar the circumstances of the patient, tends to lessen the reputation of the practitioner, while recovery, under medical hands, however inadverted, multiplies his practice."

If Luff found it hard to keep his patients, there were other physicians who had difficulty in decreasing their practice — and a country practice then as now was often very strenuous. Dr. Nicholas Way broke his leg in a fall from his horse and decided he must relinquish his country practice because of the "inconvenience of riding." However, "his patients were unwilling to yield, and this was so perplexing he knew not how to limit his visits." His wisest step, he determined, was to move away from his practice, and so he did. He moved to Philadelphia and accepted appointment as director of the mint.

Many physicians who had otherwise good practices found it difficult to collect a proper compensation for their services. Like ill-health, ill-compensation drove men from the profession. In March, 1801, Thomas Mendenhall, a Democratic politician in Wilmington, wrote the newly- inaugurated Jefferson to beg a $600 political appointment for his friend and fellow-Democrat, Dr. John Vaughan. "He is at present in a handsome run of practice for this place," Mendenhall explained to Jefferson; "yet you know doctors' bills are slowly paid."

Nathaniel Luff, who seems to have experienced every problem except continued prosperity, told of his troubles at Frederica in 1800. Three doctors were then inoculating there against smallpox. (Is there a single physician in Frederica today?) "I used very little solicitation," wrote Luff, "but inoculated when called on. Generally the poorest and least likely to pay are anxious to have it, while the more opulent are very careful and cautious, and very desirous to reduce the price." He got the least part of the practice. "Some," he added, bitterly, "have undertaken inoculation for less than the general stated price."

Luff's bitterness of feeling against his colleagues in Frederica was but symptomatic of other and more serious quarrels of physicians. On several occasions these quarrels became public, as when Dr. John Vaughan wrote letters for a Wilmington newspaper in 1799 in which he demanded the erection of a lazaretto for the ventilation of infected goods on ships arriving from fever-stricken ports. A sloop, he declared, was then unloading from Havana, where fever raged; obviously stricter quarantine laws were needed. Vaughan's letters were taken as a personal affront by the Wilmington health officer, Dr. Ebenezer Smith, who had been aboard the sloop Vaughan mentioned. In a rebuttal, Smith attempted to quiet Vaughan by ridicule, beginning his letter, "Although I have not come so recently from school as yourself, and perhaps have not as much leisure to write. . . ."

While physicians quarreled, laymen presumed to advise on matters of health. "Have so much regard for your health," Thomas Rodney wrote his daughter, "as not to lace your stays too tight. Your

lungs are weak and may be injured by it." Other advice came from itinerant practitioners of extravagant claims, like Dr. Bignall, who arrived in Wilmington in 1808, lately from Europe, he advertised, and a former student at Edinburgh. His specialty was the pharmacy of vegetables, by which he promised remarkable cures — of choleric and liver complaints, for example, which affected the lungs and often led to consumption. "Cancers, bruises, inflammations, particularly of the eyes and long standing, ulcers, if curable" — all these he undertook to treat. To the ladies he offered "a vegetable liquid and tooth powder unparalleled in this or any other country," which destroyed scurvy, prevented bad breath, and preserved the gums and teeth.

There were also itinerant dentists, like "Dr. John Dyott, professional dentist, from London," who announced in a Wilmington paper of 1809 that he would spend a few days at Brinton's tavern, "where," his advertisement ran, "he performs every operation upon TEETH; cures the Tooth-Ache, and the scurvy in the gums, be it ever so inveterate; fastens loose Teeth by making the gums grow firm up to them; renders Teeth white and beautiful; prevents their decay; keeps such as are so from becoming worse; fills up those that are hollow . . . ; extracts teeth and stumps with ease; transplants teeth; makes and fixes artificial teeth in various ways; and regulates the teeth in children." Dyott declared he had had an extensive practice in London and in other parts of Europe. He would, if requested, wait on any lady or gentleman at his home.

A rarer note is the advertisement of Miss Grace Milligan in 1789, declaring she had come to Wilmington to practice mid-wifery after having studied for over a year in Philadelphia with Dr. William Shippen, from whom she bore a recommendation. The particular significance of this announcement is that Dr. Shippen was the first man in America to lecture to midwives, and thus it reveals the expansion to Delaware of the benefits of Shippen's discussion of a hitherto secretive subject.

In the same year, another rare note appeared in a Wilmington newspaper. Drs. Capelle and Smith, the paper declared, had operated "for the strangulated hernia, or rupture, . . . on a servant man of Solomon Hersey, on Red Clay Creek." The newsworthy fact about the operation, apparently, was not so much that it was successful, but that the patient made a very rapid recovery — he was able to walk in ten days. This news, the editor felt, should encourage those who dread the operation for "a complaint many fall a sacrifice to." The note itself testifies to the improvement of surgery — an event that should be expected where young physicians like Tilton were giving demonstrations in dissection to their pupils.

This, too, was the time when patent medicines were just coming into popularity. At a newspaper office in Wilmington, one could buy "McCarty's Indian Tooth Ache Drops" for seventy-five cents a bottle. Mathew R. Lockerman, in 1807, declared that he handled all of the patent medicines manufactured by Richard Lee & Son, of Baltimore, including Lee's Anti-Bilious Pills, good for sea-sickness, headaches, change of climate, and an appetizer ("a dose never fails to remove a cold if taken on its first appearance"); Lee's Genuine Essence and Extract of Mustard, good for rheumatism, gout, palsy, lumbago, white swellings, chilblains, sprains, bruises, and pains generally; Lee's Elixir, for colds, coughs, asthma, sore throats, whooping cough, and "approaching consumption"; Lee's Infallible Ague and Fever Drops, Lee's Worm-Destroying Lozinges; Lee's Grand Restorative; Lee's Sovereign Ointment for the Itch ("may be used by pregnant women"); Lee's Eye-Water; Lee's Corn Plaister; Lee's Damask Lip Salve; Lee's Genuine Persian Lotion (prevents blemishes); and Lee's Anodyne Elixir. With such remedies at hand, many citizens probably found appeals to a physician unnecessary.

Yet every season of every year brought new challenges to the physicians of Delaware. One of them, Dr. John Vaughan compiled in the year 1803 a medical regis-

ter, as he called it, detailing the seasonal ills of Wilmington. The winter of 1803, he wrote, was a healthy one, with no pestilential diseases after the first appearance of ice. In March "influenza appeared in a moderate degree — most severe in elderly persons, in infants & valetudinarians." The disease continued into April, when "convulsions were frequent in the occasional febrile disorders of children" and there were also a few cases of scarlatina. In May the diseases were of a mixed character, with some cases of influenza and of scarlatina anginosa. Vaccination and inoculation were both going on, Vaughan noted, but "the latter . . . generally gave place to the former, and will no doubt in time surmount all opposition." June, "usually our healthiest month," saw "a number of cases of diarrhea . . . and a few cases of vesicular eruption." July brought many diseases: chicken pox, "frequent colics in adults, and a few cases of cholera." "Diarrhea was general and some cases dysenterical. The adjacent country was especially affected with the dysenterical form of fever; and it appeared . . . to have pervaded the whole of the peninsula." The diseases of July continued into August, when "dysentery became more formidable and scattering cases of fever chequered the scene . . . After the heavy rains in the middle of August the dysentery gave place to fever of different forms." "Our disease was stationary during the remainder of the autumn . . . Typhus fever became more general during September and continued with little difference in degree throughout October."

In summing up, Vaughan declared the spring diseases were not unusual in frequency or form, but that intestinal disorders had occurred earlier and more severely than usual. He believed dysentery was not contagious, but the public thought differently, and "the unconquerable horrors of contagion added to a general ignorance of nursing, not only embarrass the physician in the execution of his wishes, but obstinately conspire against the life of the patient." Perhaps the damage to crops by a May frost and a June drought had influenced the history of diseases, he suggested — for example, by causing people to eat fruits they would otherwise have discarded. He also speculated on the effect on health, particularly on the frequency of agues, of the clearing of timber from the land, and of the erection of "numerous dams for water works of various kinds."

Another local physician, James Tilton, has left us a survey of the climates and diseases of Delaware, an essay he prepared in 1790 for the president of the Philadelphia College of Physicians. "The hills of Brandywine and Christiana," Tilton asserted, "furnish as healthful a district of country as any in America. The Borough of Wilmington for health, beauty, and accommodation, is superior to any town I have seen."

He had no such kind words for his native county: "Kent, though blessed with the most fertile soil, is the most sickly of the three counties. Dover . . . is truly unhealthful. Situated eight miles within land, and shut out from all water communication by high timbered woods, the air of this district, in the hot season of the year, suffers exceedingly from stagnation."

In Sussex, Lewes won particular compliments from Tilton: "Lewes . . . is constantly fanned from the ocean and is as healthful as Bermudas. This place has furnished the longest lived inhabitants of our state . . . Lewes is much resorted to by convalescents from the inland country and neighboring states. . . . Sickly boys and others with swelled spleens and obstructed viscera from repeated and obstinate fevers are quickly restored to health, barely by a residence at Lewes. All manner of nervous weakness is relieved by the salutary air of our Cape; but asthmatic and hectic patients should be cautious how they trust themselves there."

Dr. Tilton, like Dr. John Vaughan, noted changes in the diseases — "a great change has taken place in the diseases of this part of the country," declared Tilton — and explained that local physicians had had to change their methods of treatment too. Before the Revolution, fevers were treated by repeated bleeding, "but the same method now would be attended with very different

effects; the exceptions at least are so few as hardly to deserve mentioning. Opium, wine, bark, volatile salts, are the articles of materia medica we are obliged chiefly to have recourse to. . . . We have learned from repeated observation to withhold the lancet, or to use it in the most guarded manner."

It is noteworthy that Tilton, whom we have previously seen giving an anatomical lecture to his apprentices, is here disclosing the results of repeated observation. It is not only a tribute to him but to his training — it has previously been noted that he was in the first class to take medical degrees in the English colonies — that he has learned the value of observation. Tilton was, of course, outstanding among the physicians of his time. He was offered the chair of materia medica at the University of Pennsylvania; he became surgeon-general of the American army in the War of 1812. Nathaniel Luff, on the other hand, was certainly a much less successful Delaware physician, but for that very reason a quotation from Luff should be balanced against one from Tilton for a truer approximation of the Delaware medical scene.

Let Luff, then, serve to picture the fear of the "noxious vapors" exhaled by the wooded and marshy lowlands of Delaware:

> "During our passing the forests," he wrote in 1798, " I frequently chewed camphire and smelt of it, as I passed stagnant pools and ponds, or low sunken grounds, that emitted a nauseous and disagreeable stench, and rubbed my hands frequently with the camphire, avoided much fruit or whatever tended to relax the stomach, as cucumbers, melons, etc., but refrained from spirituous liquors, not that I do not in a medicinal way esteem them salutary, but because of the excessive abuse of them, fearing lest by using them (in what is first called moderation) I may be led on to excess."

To appreciate Luff's fear, one must recall that 1798, the year in which he wrote the above passage, was the year of the dread yellow fever's arrival in Delaware. The fever had come to Philadelphia in 1793 — its arrival there is graphically recounted in John Powell's book, *Bring Out Your Dead* — but it did not reach Wilmington that year nor in the years of its recurrent visits to Philadelphia until 1798. Then it struck Wilmington disastrously. How it was caused, how it was carried, these were the great mysteries that baffled the physicians. All sorts of hypotheses were set up, but certain points seemed clear. "Every physician of this place," Dr. Tilton wrote from Wilmington to Dr. Currie, of Philadelphia, "agree[s] that the disease was imported to us from Philadelphia, by infected goods and furniture, as well as infected persons. We suppose the disease to be propagated by contagion from infected persons, clothing, vessels, houses, etc. It is remarkable . . . that stronger exhalations arise from persons affected by this fever, than in other febrile diseases; and we have reason to believe that many were affected by the contagion at a distance from the sick reaching quite across our streets."

To Tilton it was evident that "infected household goods and furniture, brought from the city [Philadelphia] by our shallops had more influence in spreading the contagion than diseased persons; for it was very remarkable that the disease was not communicated from the first person who died of it, and who came down and sickened in the land stage." Tilton was confirmed in his opinion by the fact that, as he wrote, "when the fever became epidemic, it took its rise at the water's edge, and infected all, or with few exceptions, gradually up High Street."

Its progress was fast and the mortality was appalling. Between August 7, when it first appeared, and August 20, in just two weeks there were 106 deaths in Wilmington. The rate of fatality thereafter slackened, but by November 3, 252 Wilmingtonians had died of the fever — and recall that at this time the town's population was under 5,000. (In the same period, there were 3,446 deaths in Philadelphia.) An emergency hospital was set up which admitted 88 of the fever-stricken, of whom 41 died.

After the coming of cold weather routed the fever — why, no one knew — Wilmington was spared a further visit of it for four years. Then in 1802 the mysterious malady struck again. It appeared first in Philadelphia, where authorities blamed the epi-

demic on the schooner *Eliza*, which had lost several hands of yellow fever on her voyage from Haiti. Since the *Eliza* was blamed, so, in a sense, was the board of health in Wilmington, for the *Eliza* had stopped here to unload her cargo and had been allowed to proceed to Philadelphia "without proper cleansing."

Once Philadelphia was stricken, Wilmington took great precautions to keep the disease from coming down the river. A rigid quarantine was established by our board of health. Vessels were forbidden to come up the Christina beyond the mouth of the Brandywine; a watch was stationed on the bridge over the Brandywine twenty-four hours a day, and the other approaches to the city were only a little less carefully guarded. But in spite of all precautions the fever came. Again it spread rapidly from near the waterfront, the center of its contagion seeming to be at Second and King Streets. Here the first patient was discovered, a woman named Ann Davidson who lived with her father and had returned to Wilmington on Captain Bush's packet from fever-stricken Philadelphia. King Street between Second and the Christina River was contracted to a narrow alley, and many of the cellars of the houses on it were full of water and filth. "This nest of noxious effluvia was offensive to the whole neighborhood from the beginning of August, was reported to the police as a public nuisance, and condemned as such, but not removed." Physicians feared that removal of the filth might stir up "noxious vapors," and suggested that this step be postponed until the arrival of cold weather. Meanwhile the inhabitants were advised to move without delay, but "there was no hospital establishment for the indigent sick, nurses could not be procured that would do justice to them, and the board of health had neither power nor funds to do much for their relief."

The epidemic of 1802, however, brought less fatalities than that of 1798. From September 1 to November 2 there were 72 deaths from the fever. By far the greatest incident of disease was in the area south of Third Street and east of Market; here 157 persons were ill and 56 died. The higher parts of town appeared secure at first, but by mid-October even their inhabitants "were seized with consternation and fled. A melancholy gloom pervaded the deserted streets, and the forlorn subjects of disease suffered accumulated miseries."

The health officer, Dr. Ebenezer Smith, and his wife and son caught the fever, and eventually, from illness and flight, only a few courageous souls were left to aid the afflicted, not a physician remaining but Dr. John Vaughan. "I may safely say," wrote Vaughan, "I have not had two hours uninterrupted sleep for three days and nights — every morning out at day light. . . . I often walk from here to the lower end of town in the evening, without seeing a human creature. In the mornings I meet a few grave friends at the corners to inquire the events of the night, who shake me by the hand and express the most earnest satisfaction at meeting me once more." The final fever victim in 1802 was John Ferris, a lay member of the board of health who had devotedly visited the sick and had often laid out and buried the dead. "My last companion," Vaughan called him on hearing of his illness; "hard indeed will the decrees of fate appear, if after having toiled so long and so earnestly to relieve the distresses of others, he must now yield up that life which has been so useful to the public."

Hard indeed are the decrees of history which ignore the courage displayed by such men as these. Soldiers and statesmen and explorers of geographic frontiers — these men are properly remembered in our annals of the past. But other adventurers on the fringe of the little known and the unknown, such as the scholars and the scientists, are often unappreciated and forgotten. Fevers and agues were as devastating and as deadly as red Indians and Barbary pirates, so perhaps it is well that we take a few minutes to recall the problems and the failures and the achievements of the Delaware physician of 1800; his story is a significant part of the tale of man's everlasting and somewhat groping effort against his environment.

THE MONTH IN WASHINGTON

Washington, D. C. — Within a few months there will be under way the first comprehensive survey ever to be made of the nation's mental health problems. The study will attempt to measure the extent of mental illnesses, to judge the progress and lack of progress in research, and to estimate the additional hospitals and clinics and trained personnel needed before a start can be made toward a solution.

A newly-formed Joint Commission on Mental Illness and Health already has begun preliminary work on the survey. The all-out effort will be initiated — possibly before the first of the year — after the Commission has received the formal approval of the National Mental Health Advisory Council of U.S. Public Health Service and the Surgeon General. Once this endorsement has been given, $250,000 in U.S. funds will be available to help with the first year's operations. Another million dollars is to be supplied over the following two years.

Originally, the Joint Commission was formed by the American Medical Association's Council on Mental Health and the American Psychiatric Association. Later other associations joined in, including the American Association of Psychiatric Social Workers, the American Hospital Association, the American Nurses Association, the National League of Nursing, the American Psychological Association and the National Education Association.

A nationwide survey has been the objective of these associations for more than a year. Substance was added to the idea this year when Congress approved the $1,250,000 fund, to be used over three years, for a comprehensive study. The law specifies that the investigation be conducted by non-governmental bodies; to fully qualify, the Joint Commission has been legally incorporated.

At hearings before Congressional committees early this year psychiatrists and others outlined the complex problem they are facing.

The care of mental patients is one of the great financial burdens of the states; rate of cure and rehabilitation is so low that institutions are being filled as fast as they can be constructed; half the hospital beds are occupied by mental patients and their care costs more than a billion dollars a year in tax funds.

There are not enough psychiatrists trained to administer state programs or even all the large hospitals; competition for the top men in this field has been compared to the proselyting of football players and coaches.

Many of the leading psychiatrists complain that too much attention is being paid to constructing hospitals and not enough to research, which might develop treatments that would keep many patients out of institutions, and bring about the rehabilitation of hundreds of thousands of others now hospitalized.

In testifying before a House committee early this year, Dr. Leo H. Bartemeier, representing the AMA, argued for federal help in conducting the survey. He told the Committee: "For several years we in the profession of psychiatry have been aware of the critical need for a survey and evaluation of our facilities and programs for the diagnosis, treatment and care of the mentally ill and retarded. While the problems of mental illness appear to grow in almost geometric proportion, we find ourselves without a comprehensive, up-to-date, integrated body of knowledge in spite of the fact that many worthwhile surveys and studies in this field have been made. It is only with such complete knowledge that our present and future direction and programs can be properly planned."

NOTES

Before it prepares a report on the narcotic problem, the Senate subcommittee will have held hearings in most parts of the country. Many local addiction problems have been described. At the New York hearing, the subcommittee was urged to recommend a system of clinics, where the addict legally could obtain narcotics at reasonable cost, thereby defeating the rackets.

Although states either may take U.S. grants to buy Salk vaccine or the vaccine itself, most of them are taking the money.

Editorial

DELAWARE STATE MEDICAL JOURNAL

Owned and published by the Medical Society of Delaware, a scientific non-profit corporation. Issued the fifteenth of each month under the supervision of the Committee on Publication.

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VOL. 27 OCTOBER, 1955 NO. 10

TITLES AND DEFINITIONS

So many persons are called "doctor" that the term has lost much of its historic meaning of Doctor of Medicine. The word doctor comes into the English language from the old French, and from the Latin "docere" meaning to teach. It has always been applied to a professional man, one who knows a very great deal about some department of learning, so as to be able to teach. It has been used mainly in reference to doctors of divinity, medicine, education, law, music, science, philosophy, etc.

The term "doctor" has during the years become attached especially to those practicing medicine, so much so that for the last century the word "doctor" almost always meant a doctor of medicine. It is probably unfortunate that the term became so misunderstood. The Germans use the same word, but also the word "artz". The French say "docteur" but almost always add "medicin" defining the application.

In THE JOURNAL of the Michigan State Medical Society, we try to always use the person's name with M.D. following, before referring to him as "doctor," to surely distinguish what kind of "doctor" he is.

In our time when so many cults have sprung up every member of them wants to use the term, and without modification. We have osteopaths who have become accepted in the title. Chiropractors, naturopaths, etc., are attempting to gain a legal right to the title, together with a certain amount of acceptance in the practice of some phase of the field of medicine. We also have the psychologists, who are supposedly trained in the understanding of psychic phenomena, behavior, et cetra. There are many of them connected with the schools, who are practicing something very close to medicine. Also we have the sociologists who delve into sociological problems, with emphasis more on the social and economic than the psychic.

We have our own group, the psychiatrists, who are doctors of medicine and, in addition, have taken three or more years of training in the problems primarily of the mind and of a neurological nature.

In another field of medicine, we have a group which the general public just as truly misunderstands. The ophthalmologist (old term, oculist) is a doctor of medicine who has taken years of training in diseases of the eye, its diagnosis and treatment. Here again, untrained or partly trained persons have edged into the practice of another field of medicine: the optometrist, who calls himself "doctor," has pre-empted much of the fitting of glasses, and at present is attempting to have special laws enacted in many of our states limiting to himself the fitting of glasses and the "examination of eyes." These laws might prohibit ophthalmologists, who are doctors of medicine, from fitting glasses. "Opticians" form another group, the first to invade the field. Opticians originally claimed the whole field of treatment of the eyes, used drops for refraction, but mostly confined their practice to fitting of glasses. They, too, called themselves "doctor." Their mistake was in that some of them became anxious for more meaningful use of the term "doctor", branched out, coined the word "optometrist" and started high-hatting the opticians, whom they now recognize as grinders of lenses and fitters of frames.

It is high time a legal definition and limitation of the term "Doctor" be adopted especially to protect the unwary public.

Editorial, *J. Mich. S.M.S.*, July, 1955.

COMING MEETINGS

1955

October 21 — Staff Meeting, Beebe Hospital, Lewes, 9:00 P.M.

October 25 — Staff Meeting, Saint Francis Hospital, Wilmington, 8:30 P.M.

October 26 — Delaware Psychiatric Society, Delaware Academy of Medicine, Wilmington, 8:00 P.M.

October 30 — Delaware Academy of General Practice, Breakfast Meeting, Concord Diner, Dr. James Hughes: Mental Conditions Seen by the General Practitioner, 9:00 A.M.

November 3 — Staff Meeting, Beebe Hospital, Lewes, 1:00 P.M.

November 9 — Health Forum, second of the series of "Health Problems During the Life Span," P. S. duPont High School, Wilmington, 8:00 P.M.

November 10 — Visiting Internist, Thomas Brown, M.D., Professor of Medicine, George Washington University, Delaware Hospital.

November 10 — Sussex County Medical Society, Milford, 9:00 P.M.

November 13 — Delaware Academy of General Practice, Breakfast Meeting, Concord Diner, Dr. Elmer Gross: Skin Planing for Eczema, 9:00 A.M.

November 13 — Kent County Hospital Staff Meeting and Medical Society, Maple Dale Country Club, 9:00 A.M.

November 14 — Staff Meeting, Milford Memorial Hospital, Milford, 4:30 P.M.

November 15 — New Castle County Medical Society, "The Place of a Convalescent Hospital Program for Home Care of Patients," Speaker: E. M. Bluestone, M.D., Eugene duPont Convalescent Memorial Hospital, Wilmington, 8:30 P.M.

November 22 — Staff Meeting, Wilmington General Hospital, Wilmington, 8:30 P.M.

Hospital Conferences

Saint Francis Hospital

Obstetrics—Gynecology—Every Wednesday — 8:00 A.M.

Medical — Third Wednesday — 10:00 A.M.

Surgical — Third Tuesday — 8:30 A.M.

Wilmington General Hospital

Medical — Second and Fourth Saturday — 8:30 A.M.

Surgical — First and Third Wednesday — 8:30 A.M.

Memorial Hospital

Medical — Every Tuesday — 8:30 A.M.

Tumor — October 19 — November 2 — November 16 and 30 — 12 noon.

Obstetrics — Gynecology — October 26 and November 9 and 23 — 12 noon.

Surgical — Every Saturday — 8:00 A.M.

Delaware Hospital

Urology — Every Wednesday — 8:00 A.M.

Medical — Every Thursday — 8:30 A.M.

Surgical — Every Saturday — 8:30 A.M.

Tumor — October 26, November 9 and 23 — 12 noon.

Official Tour to Nassau

The JUNGLE CLUB in Nassau will provide an unusual setting for luncheon and a medical meeting on December 7 for members of the American Medical Association who accept an invitation extended recently by the Bahamas Medical Association.

So that physicians may accept the invitation, an Official Tour to Nassau has been scheduled for the week of December 2-10 immediately following the A.M.A. Clinical Session in Boston, November 29-December 2.

A certificate of attendance at a medical meeting will be issued to each physician, which may offset partially the fiscal effects of Christmas shopping among the tempting array of British and European imports at bargain prices.

A full calendar of sightseeing, sporting events, and social functions has been arranged for physicians and their wives, assuring tour members of a delightful vacation amidst the colorful surroundings of Nassau.

Travel arrangements have been made cooperatively by United Air Lines, British Overseas Airways, Nassau Development Board, and International Travel Service, Inc. of Chicago.

Official tour folders may be secured by writing to A.M.A. NASSAU TOUR HEADQUARTERS at 35 East Monroe Street, Chicago 3.

F. ERLE SPENCER, M.D.

Dr. F. Erle Spencer, 63, chief of obstetrics and gynecology at the Memorial Hospital, died there on September 20, 1955, of coronary disease, following an operation for peptic ulcer and hernia.

He had returned from a hunting trip to Wyoming and Montana on Labor Day.

A native of Oxford, Pa., Dr. Spencer was the son of George and Eliza Jane Spencer, and received his medical degree from Hahnemann Medical College, Philadelphia, in 1915. He spent his internship at Hahnemann Hospital the following year.

During more than 35 years of practice in Wilmington, Dr. Spencer served first in general medicine and then took post-graduate studies in obstetrics at the Long Island Hospital and in Vienna. He had been chief of obstetrics and gynecology at the Memorial for approximately 15 years and on the hospital staff for more than 30 years. From 1952 to 1954 he was president of its medical staff.

Surviving are his wife, Mrs. Laura Spencer; three children: Mrs. Bruce D. Nichols of Fairfield, Conn.; Richard C. and Leah A. Spencer, both of Washington, D. C., and two grandchildren.

Dr. Spencer was a member of the New Castle County Medical Society, the Medical Society of Delaware, and the American Medical Association.

Funeral services were held on September 22, at the chapel of Christ Episcopal Church, Christiana Hundred, the Rev. Dr. William C. Munds officiating. Interment was at Faggs Manor Cemetery, near Oxford, Pa.

PETRONIO ALAVA, M.D.

Dr. Petronio Alava, 56-year-old chief of surgery at St. Francis Hospital and a fellow of the International College of Surgeons, was stricken suddenly and died in his office on October 11, 1955.

The surgeon was born and educated in the Philippine Islands, where a classmate was Gen. Carlos P. Romulo, former president of the Philippines and UN delegate. After graduation from the University of the Philippines, Dr. Alava enrolled in the medical school of Washington University, St. Louis, graduating in 1923. He interned at the Alexian Brothers Hospital, Chicago, and then began his residency at St. Francis.

Dr. Alava was a skilled pianist, a talent which his eldest daughter also displayed during her Miss America pageant competition in 1953.

Dr. Alava belonged to the New Castle County Medical Society, Medical Society of Delaware, American Medical Association, and the Catholic Diocesan Alumni Association.

Surviving are Mrs. Margaret Boone Alava, a former nurse at St. Francis Hospital, whom he married in 1929. He was the father of Mrs. Ian Gordon Walker of Somerville, Mass., the former Lois Alava, Miss Delaware of 1953; Miss Claire Alava, a teacher at the Faulk Road School; Miss Jane Alava, Ursuline Academy student; and Victor Alava, with the Air Force at Lockbourne Air Force Base, Columbus, O.

Also surviving are brother, Teodoro, a physician, serving at the Philippine General Hospital, and two sisters in the Philippines.

Requiem mass was said in St. Helena's Catholic Church, Bellefonte, on October 14, 1955. Interment was in Cathedral Cemetery.

It is certain that tuberculosis is not an inescapable component of human society. It is always the result of gross defects in social organization and in the management of individual life. It is truly a social sin which can and must be stamped out. Rene J. Dubos, Ph.D., Am. Rev. Tuberc., July, 1953.

BOOK REVIEWS

TEXTBOOK OF PEDIATRICS. By Waldo E. Nelson, M.D., Professor of Pediatrics, Temple University; Medical Director of Saint Christopher's Hospital for Children. With the Collaboration of Seventy Contributors. Sixth edition. Pp. 1581. Cloth. Price, $15.00 Philadelphia: W. B. Saunders Company, 1954.

This new edition presents a complete clinical guide to the practice of pediatrics. Coverage of disease is thorough in every respect. A number of sections have been revised and expanded. There is a new section on tumors. While it is a large book, the text is representative of current pediatric thought and is concisely written. It is a book which ought to be in the library of every teacher, student, and practitioner of pediatrics.

PEDIATRIC DIAGNOSIS. By Morris Green, M.D., Assistant Professor of Pediatrics, Yale University, and Julius B. Richmond, M.D., Professor and Chairman of the Department of Pediatrics, Syracuse University. Pp. 436. Cloth. Price, $10.00. Philadelphia: W. B. Saunders Company, 1954.

As stated in the preface: "The emphasis throughout this book is on competence in history taking and physical examination; on the accomplishment of *early* diagnosis; on the application of information from the basic sciences to clinical situations; on the development of a functional knowledge of physical, physiologic and psychologic growth and development; and on differential diagnosis".

It is a very comprehensive book in its intended field and one which can very readily be used for deriving information or arriving at a diagnosis. It can be highly recommended.

A TEXTBOOK OF PHYSIOLOGY. Edited by John F. Fulton, M.D., Seventeenth edition. Pp. 1275 with 600 illustrations. Cloth. Price, $13.50. Philadelphia: W. B. Saunders Company, 1955.

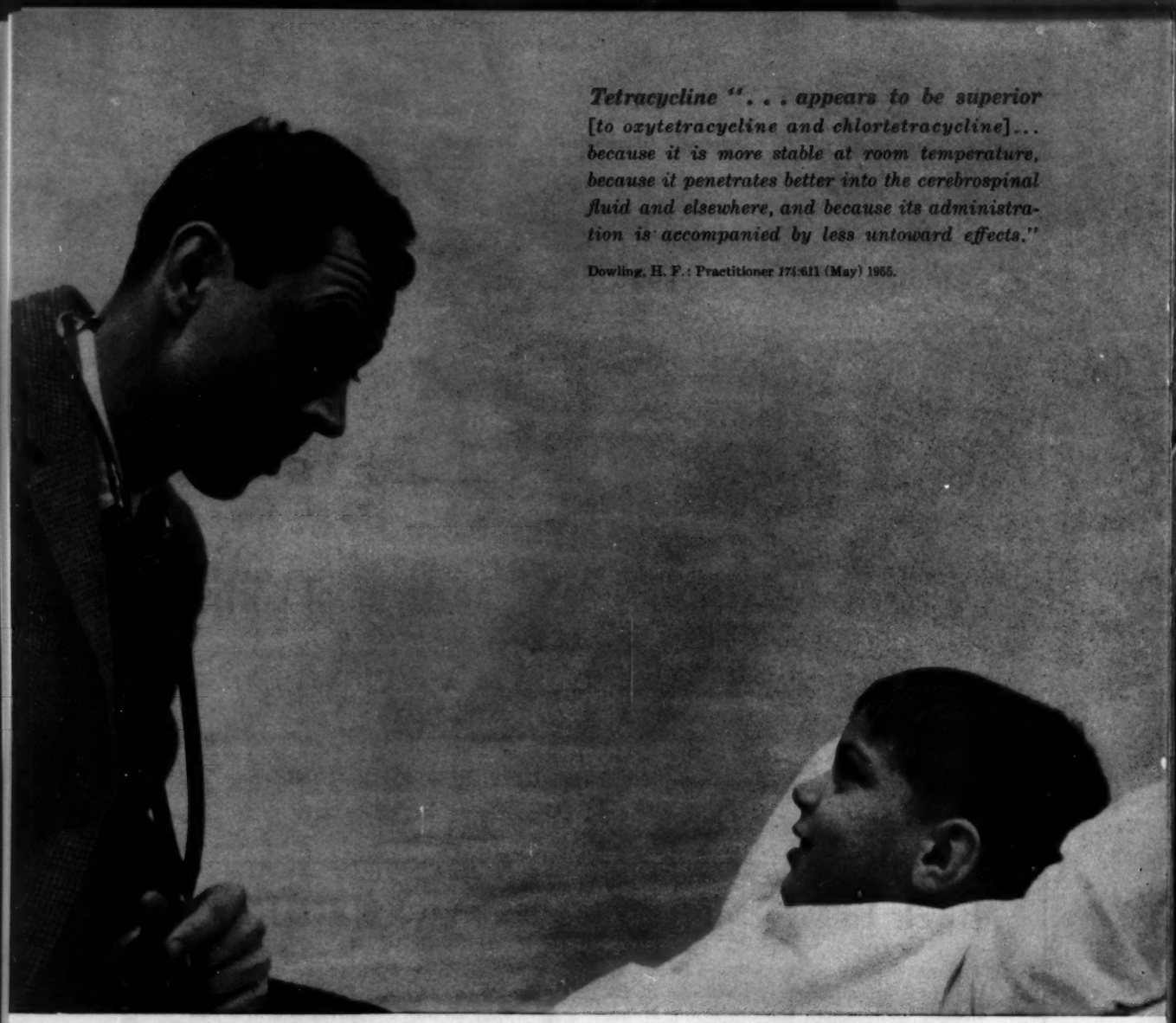
This textbook has withstood the test of time in the field of human physiology. Fifty years have elapsed since the first edition. Our understanding and appreciation of the value of human physiology in clinical medicine have increased tremendously during this period.

We were impressed by Dr. W. H. Howell's remarks in the preface to the first edition, 1905: "The author has endeavored to make the student realize that physiology is a growing subject, continually widening its knowledge and readjusting its theories. Many of our conclusions are not the final truth, but provisional only, representing the best that can be done with the knowledge at our command." In the preface to the present edition, it is stated that " . . . physiology . . . is a discipline unto itself, yet that it must always remain the solid foundation of the medical sciences . . . ".

While the entire book has been brought up to date by the twelve collaborators and a number of contributors, many sections have been rewritten in the first seven chapters, as on body fluids and kidney function, respiration, and acetylcholine and energy transformation in nerve cells. Adequate references add to the research value of each subject. Good paper, clear type, and a detailed index make this a valuable addition to the library of every medical student and physician.

BASIC PRINCIPLES OF PARLIAMENTARY LAW AND PROTOCOL. By Marguerite Grumme, R. P. Second edition. Pp. 68. Paper. Price, $1.00. St. Louis: (3830 Humphrey St.) Marguerite Grumme, 1955.

The Basic Manual, as it is called in general use, has met with approval by professional people in all fields throughout the country. People today are group and procedure conscious but few have time to read 300 pages of any authority. The Manual offers the opportunity for the busy man or woman to review, refer to, or learn parliamentary law in a brief time. It is pocket size, yet complete and authentic and contains many features not found in other books of this type, such as a Meeting Agenda, a Convention Agenda, a simplified Chart of Motions, Club Protocol, and a Protocol for the Speaker. Thus the Manual is a handy guide for the expert, and a boon for the beginner. Heartily recommended.



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Dowling, H. F.: Practitioner 174:611 (May) 1955.

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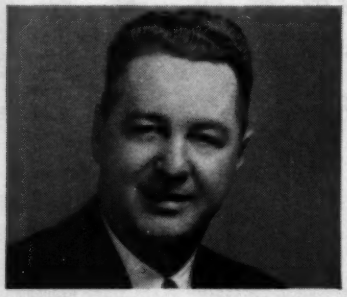

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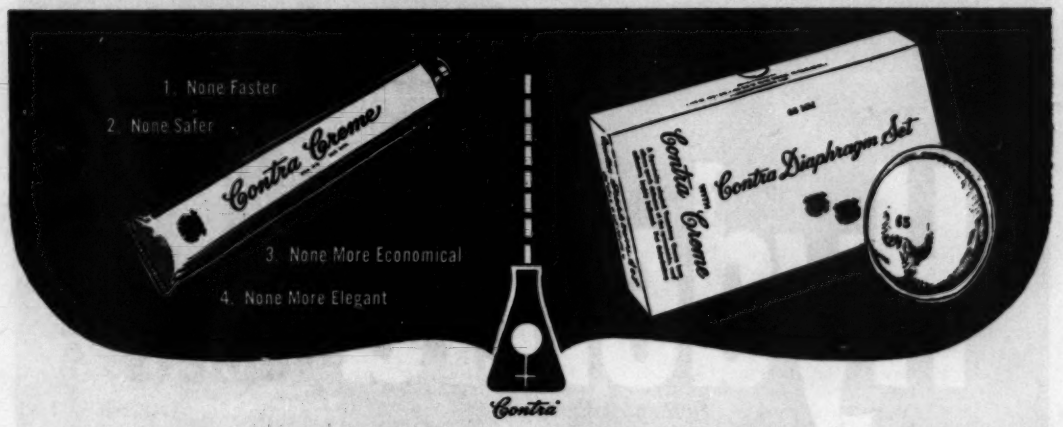

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REFERENCES:

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(1) Jeans, P. C., in A. M. A. Handbook of Nutrition, ed. 2, Philadelphia, Blakiston, 1951, pp. 275-278.

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